



*IBM WebSphere Business
Modeler V6.2: Process
Simulation and Analysis*

(Course code WB286 / VB286)

Student Exercises

ERC 1.0

Authorized



Training

WebSphere Education

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Exercises description

This course includes the following exercises:

- Refer to Table of Content

In the exercise instructions you will see each step prefixed by a line. You may wish to check off each step as you complete it to keep track of your progress.

Most exercises include required sections which should always be completed. These may be required before performing later exercises. Some exercises may also include optional sections that you may wish to perform if you have sufficient time and want an additional challenge.

This course includes two versions of the course exercises, “with hints” and “without hints”.

The standard “Exercise instructions” section provides high-level instructions for the tasks you should perform. You need to apply the knowledge you gained in the unit presentation to perform the exercise.

The “Exercise instructions with hints” provide more detailed instructions and hints to help you perform the exercise steps.

Exercise 1. There is no exercise for this unit

Exercise 2. There is no exercise for this unit

Exercise 3. Simulation and analysis

What this exercise is about

This exercise covers simulation and analysis.

What you should be able to do

At the end of the exercise, you should be able to:

- Run a process simulation
- Use global simulation settings
- Run a simulation with global simulation attributes
- Use local simulation attributes
- Run a simulation with local simulation attributes

Exercise instructions

In this exercise, you will run a simulation using a project called FMC Project, which is already built for you. There is a loan application process called **Credit Request** in this project in which a customer will apply for a loan. The credit request can be either rejected or accepted at the end of the process.

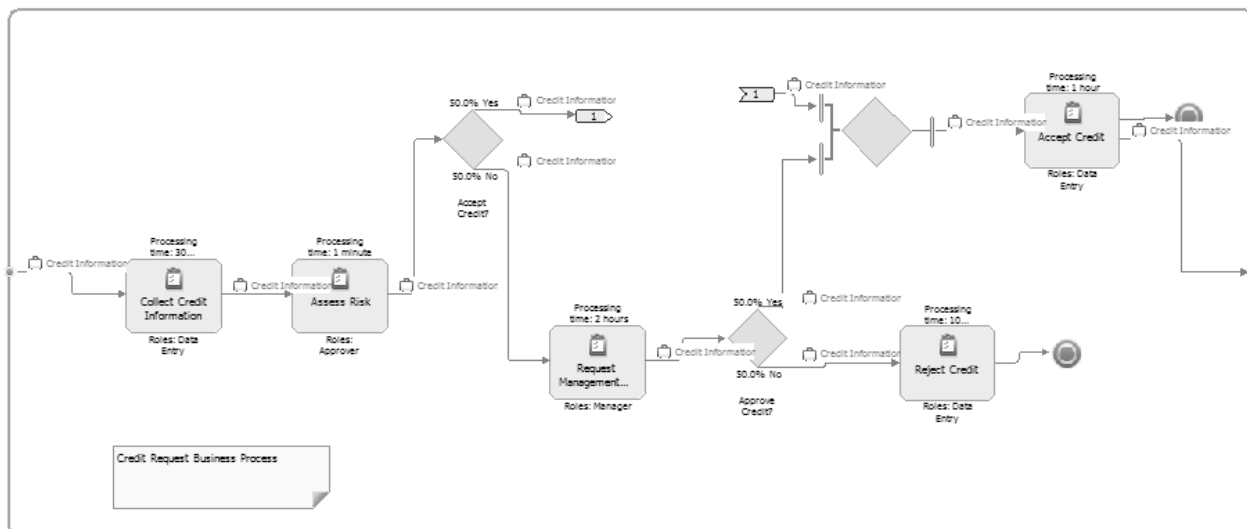
Part 1: Opening workspace

- ___ 1. Launch WebSphere Business Modeler and use the following workspace:
C:\workspaces\Lab16_workspace

Part 2: Examining the credit request process

Before running the simulation, take a look at the Credit Request process in the Project Tree.

- ___ 1. Open the Credit Request process by double-clicking the **Credit Request** process in the **FMC Process Catalog** in the Project Tree.

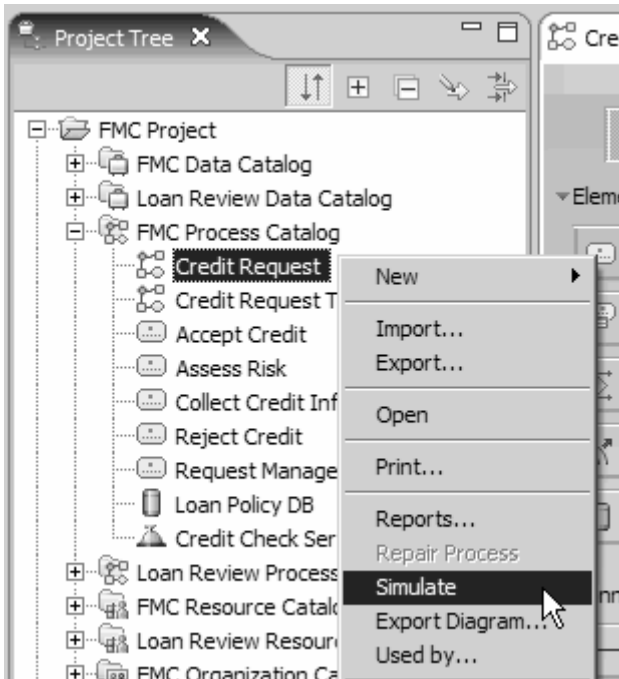


- ___ 2. Close the Credit Request process editor.

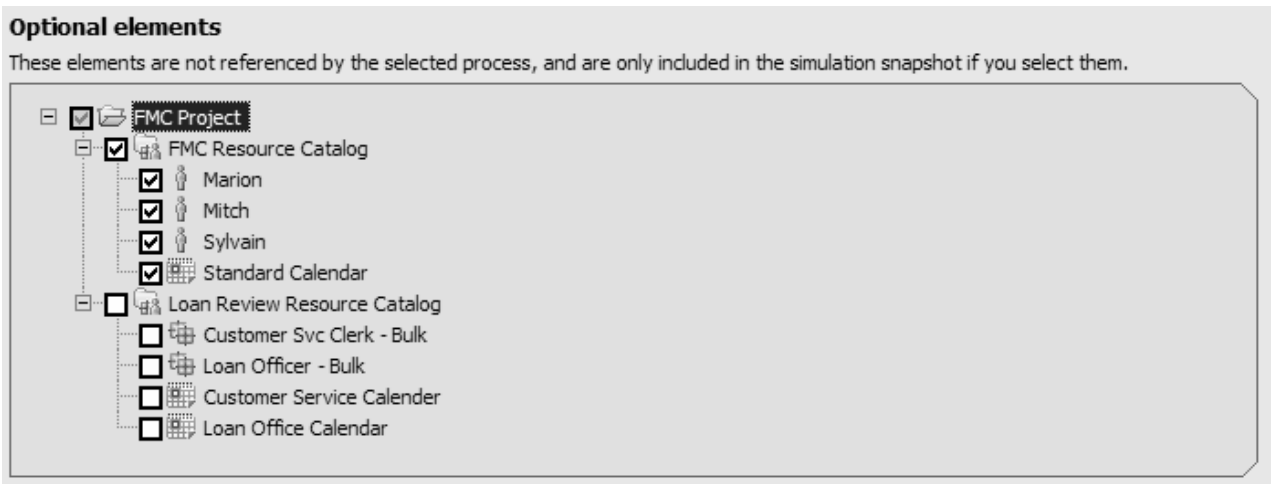
Part 3: Running a process simulation

Simulating processes helps identify issues and potential improvements. You can create one or more simulation profiles for each process and then use the simulation editor to specify attributes of the profile, such as the quantity of available resources and the number, rate, and composition of inputs to the process. You can also set specific conditions such as cumulative costs for the process.

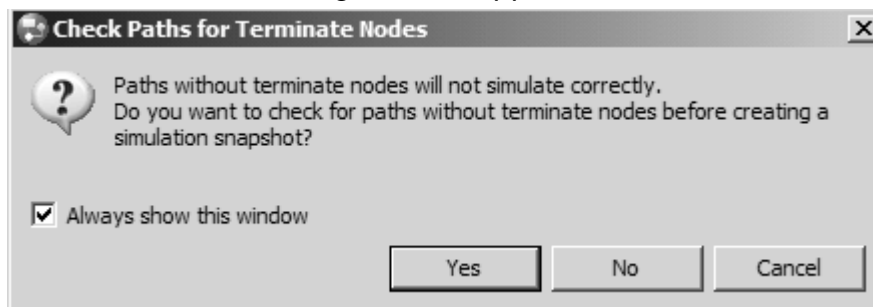
- ___ 1. Create a simulation snapshot by right-clicking the **Credit Request** process in the **FMC Process Catalog** in the Project Tree and selecting **Simulate**.



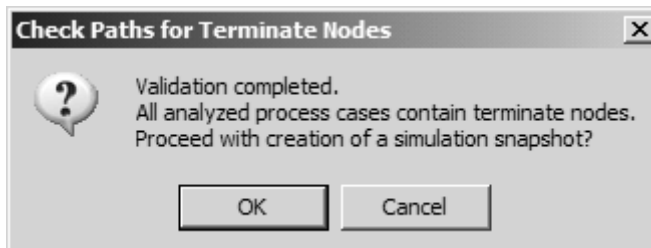
- ___ 2. During the simulation, resources and timetable should be included. Select **FMC Resource Catalog** from the **Optional elements** section.



- ___ 3. Click **OK**.
- ___ 4. Click **Yes** if the following window appears.

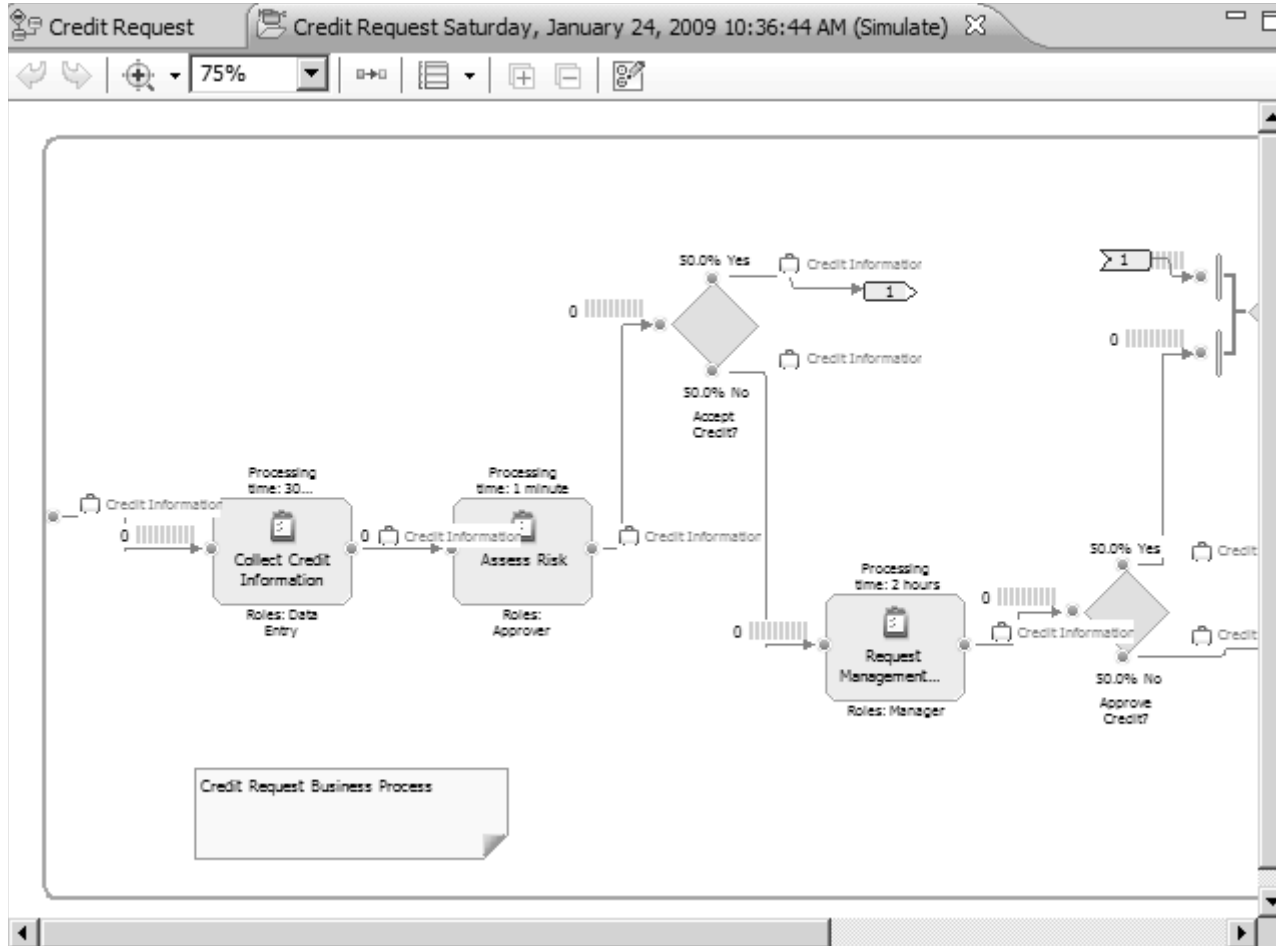


___ 5. Click **OK** if the following window appears.

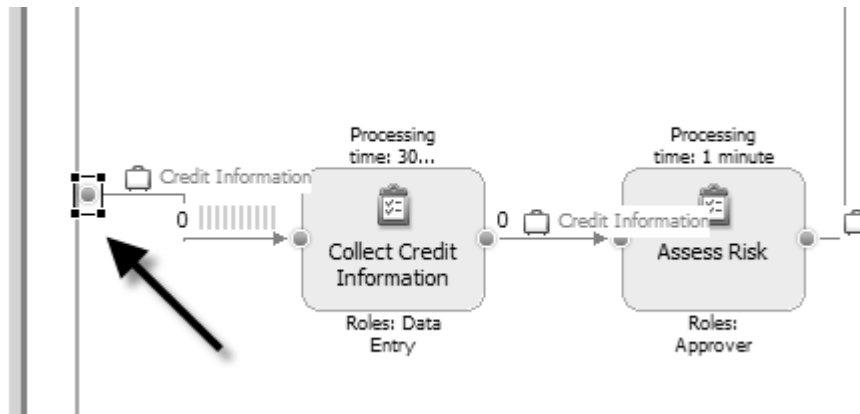


After the simulation snapshot has been created, a simulation editor opens.

___ 6. The simulator editor should appear as follows:



- ___ 7. Within the simulation editor, click the process input (see circle below).



The **Attributes - Input** pane is displayed with Token Creation settings: you can specify settings here for inputs of a simulated process that determine the rate, quantity, start time, and costs of inputs.

- ___ 8. In the **Attributes - Input** pane, under the **Input** tab, click the **Edit** button next to **Total Number of tokens**.
- ___ 9. Enter 5 for a specific number of tokens, and click **OK**.

This will cause the process to simulate five requests for credit.

The Token creation settings should look as follows:

- ___ 10. Select **Time trigger**, and click **Edit** button to set the **Start Time** to **Monday, January 5, 2009 at 9:00:00 AM**. Do not change the time zone.

- ___ 11. Press **Ctrl-S** to save.

- ___ 12. Click the background of the process diagram and review the **Attributes-Input** pane for the simulation.
- ___ 13. In the **General** tab, click the **Edit** button next to **Process availability begins**.
- ___ 14. Select **Monday January 5, 2009 at 9:00:00 AM**. Do not change the time zone.
- ___ 15. Click **OK**.
- ___ 16. The value for **Process availability ends** does not need to be modified.

Overview | **General** | Inputs | Input Logic | Business Item Creation | Resource Pool | Interrupts

Create settings for the entire simulation

Process availability begins

Process availability ends

- ___ 17. Scroll down to the **Random number seed** field and enter the value 10.

Setting a value of zero as the random number seed causes the system to generate its own random number seed. This in turn means that multiple runs of an identical profile may result in different simulated behavior because random decisions are made differently from run to run.

If you set any value other than zero, each simulation of an identical profile results in identical behavior. In other words, setting a random number seed other than zero makes it possible for you to exactly reproduce a simulation run.

- ___ 18. Scroll down to the bottom and, next to **Use resources' time required as a task processing time**, verify that the **Yes** option is selected.

Maximum number of process invocations

Random number seed

Delay for steady state simulation

Days	Hours	Minutes	Seconds	Milliseconds
<input type="text" value="0"/> <input type="button" value="▲▼"/>	<input type="text" value="0"/> <input type="button" value="▲▼"/>	<input type="text" value="0"/> <input type="button" value="▲▼"/>	<input type="text" value="0"/> <input type="button" value="▲▼"/>	<input type="text" value="0"/> <input type="button" value="▲▼"/>

Method of selecting an output path:

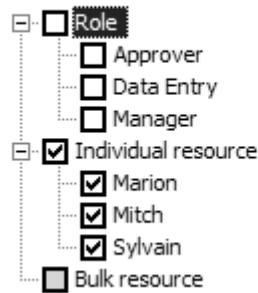
Enable Form simulation ☐ Yes ☒ No

Use resources' time required as a task processing time ☒ Yes ☐ No

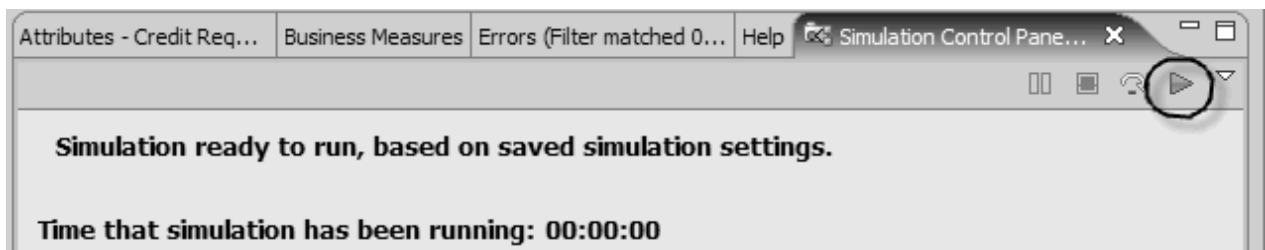
- ___ 19. Select the **Resource Pool** tab.

- ___ 20. Under the **Resource** field, clear the check box next to **Role**. The check boxes for the **Approver**, **Data Entry**, and **Manager** roles are also clear.

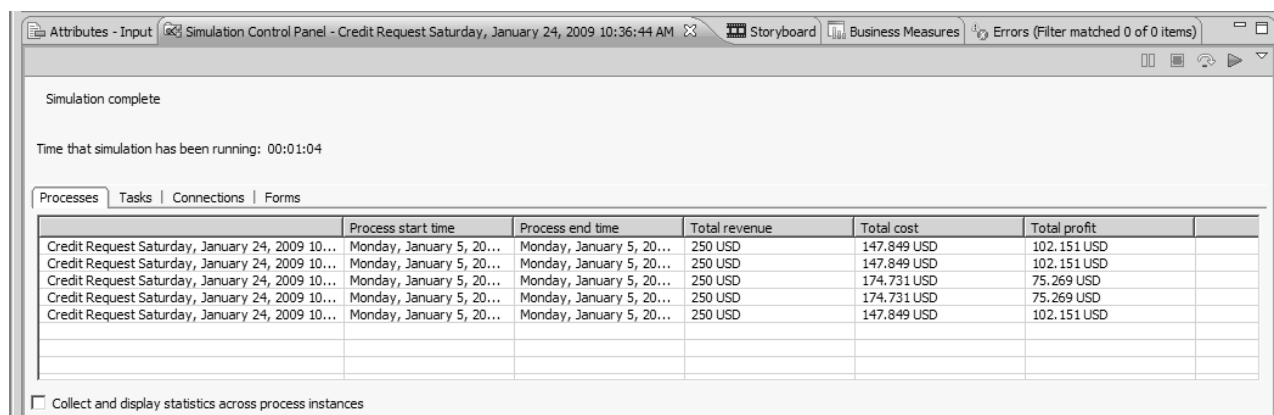
Select the resources that are available to the simulation.



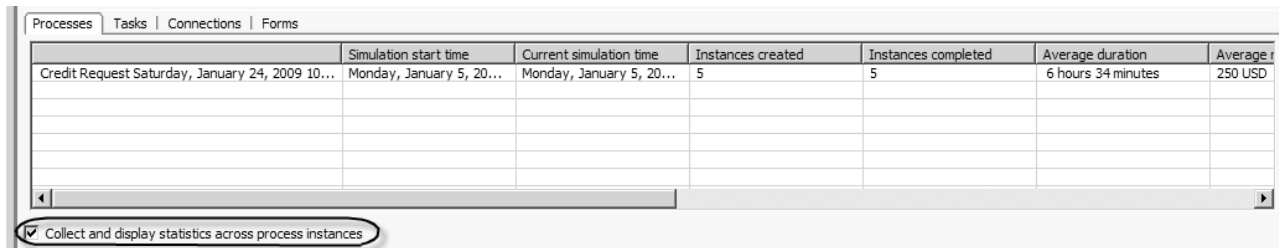
- ___ 21. Save the simulation settings (Ctrl+S).
- ___ 22. Select the **Simulation Control Panel** tab and click the **Run** button at the top right corner of the view (see below).



During the simulation, you will see the **Credit Request** process in action, and each token (job) will flow through the process. The results are displayed upon completion of the simulation. You may need to resize the **Simulation Control Panel** in order to view more of the simulation results.



- ___ 23. Click the **Collect and display statistics across process instances** check box to view generated statistics as averages for all process instances.

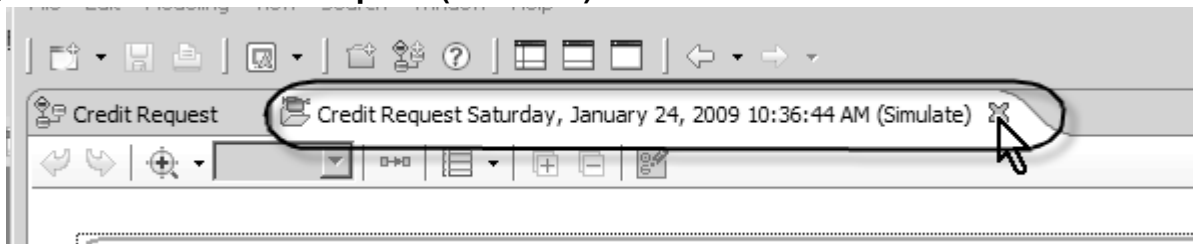


	Simulation start time	Current simulation time	Instances created	Instances completed	Average duration	Average cost
Credit Request Saturday, January 24, 2009 10:36:44 AM (Simulate)	Monday, January 5, 2009 10:36:44 AM	Monday, January 5, 2009 10:36:44 AM	5	5	6 hours 34 minutes	250 USD

☒ Collect and display statistics across process instances

There were five instances created and five instances completed. In other words, there were five credit requests successfully passed through the simulation.

- ___ 24. Close the **Credit Request (Simulate)** editor.



Part 4: Using global simulation settings

This lab walks you through the steps to prepare the simulation environment to use some of the more advanced features of WebSphere Business Modeler.

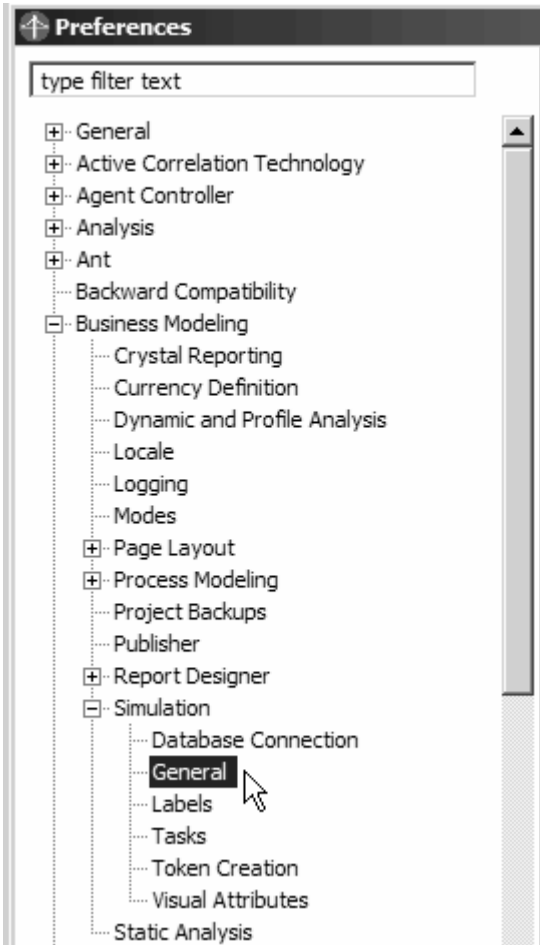
Simulating processes assists in identifying issues and potential improvements. You can create one or more simulation profiles for each process and then use the simulation editor to specify attributes of the profile, such as the quantity of available resources, number, rate and composition of inputs to the process. You can also set specific conditions such as cumulative costs for the process.

In this exercise, you set the global simulation attributes, which will save you time in the future as you create additional simulation profiles for this process.

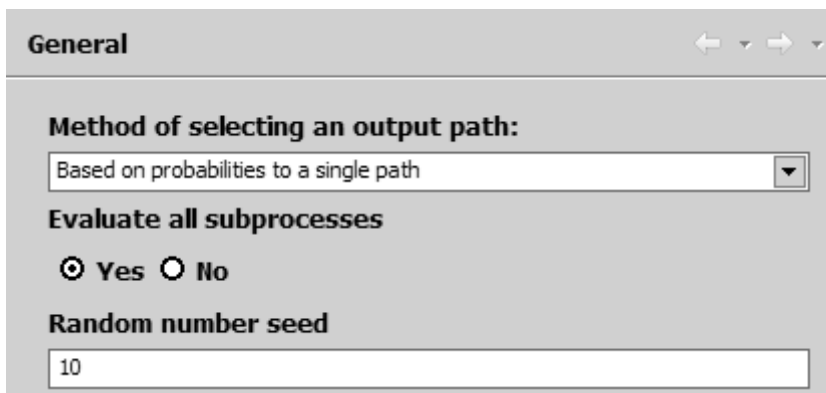
Since the simulation will be performed multiple times during this exercise, it is a good idea to set up the simulation global settings.

- ___ 1. In the menu bar of WebSphere Business Modeler, select **Window > Preferences**. The **Preferences** window appears.

- ___ 2. In the navigation tree (left pane) of the **Preferences** window, select **Business Modeling > Simulation > General**.



- ___ 3. Under **General simulation settings**, enter 10 in the **Random number seed** field.



- ___ 4. In the navigation tree, under **Business Modeling > Simulation**, select **Token creation**.

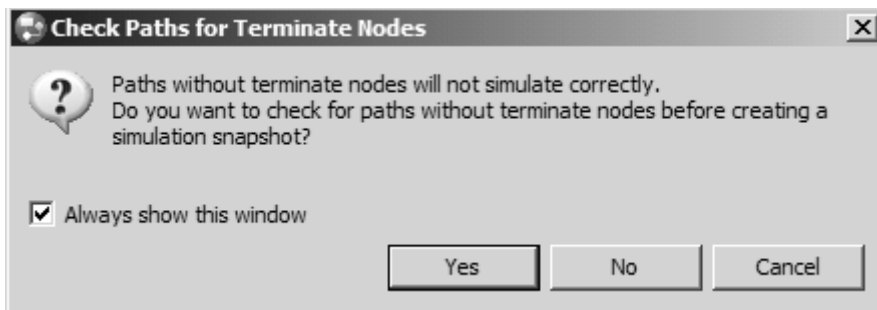
The **Token creation settings** screen appears in the pane on the right side.

- ___ 5. Click the **Edit** button next to **Start time**.
- ___ 6. Set the time to **Monday, January 5, 2009 9:00:00 AM**.

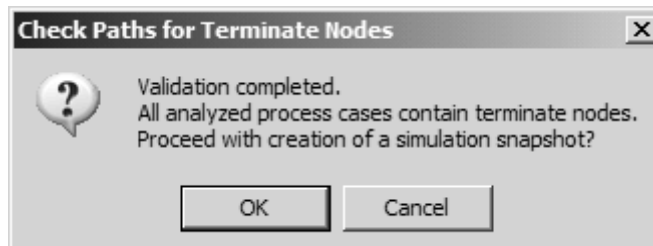
- ___ 7. Click **Apply**.
- ___ 8. Click **OK** to exit the **Preferences** window.

Part 5: Running a simulation with global simulation attributes

- ___ 1. From the Project Tree, right-click the **Credit Request** process and select **Simulate** from the context menu.
- ___ 2. During the simulation, resources and timetable should be included. Select **FMC Resource Catalog** from the **Optional elements** section.
- ___ 3. Click **OK**.
- ___ 4. Click **Yes** if the following window appears.



- ___ 5. Click **OK** if the following window appears.



- ___ 6. Click the background of the process diagram and review the **Attributes** pane for the simulation.
- ___ 7. In the **General** tab, click the **Edit** button next to **Process availability begins**.
- ___ 8. Select **Monday January 5, 2009 at 9:00:00 AM** and click **OK**.
- ___ 9. The value for **Process availability ends** does not need to be modified.

- ___ 10. Verify that 10 is defined as the **Random number seed** as defined in the global preferences.

The screenshot shows the 'Simulation Control Panel - C' window with the 'General' tab selected. The 'Overview' tab is also visible. The 'Create settings for the entire simulation' section contains the following fields and controls:

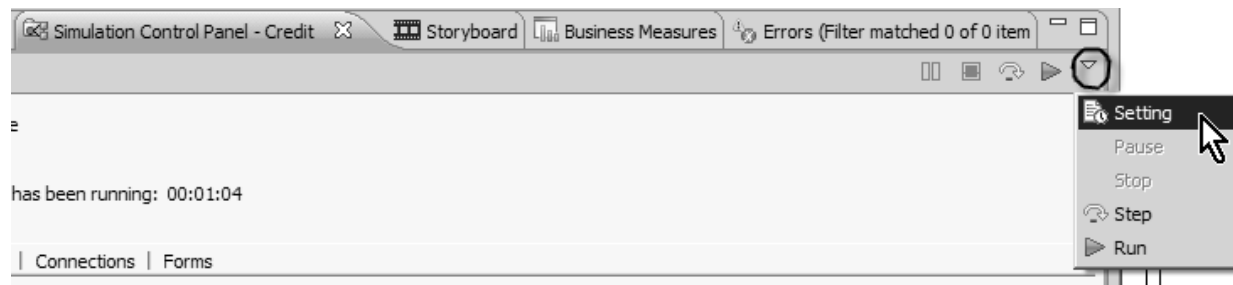
- Process availability begins:** Monday, January 5, 2009 9:00:00 AM GMT-8 (with an 'Edit...' button)
- Process availability ends:** Sunday, January 24, 2010 10:34:07 AM GMT-8 (with an 'Edit...' button)
- Evaluate all subprocesses:** ☒ Yes ☐ No
- Maximum simulation duration:**
 - Days: 365
 - Hours: 0
 - Minutes: 0
 - Seconds: 0
 - Milliseconds: 0
- Maximum number of process invocations:** 0
- Random number seed:** 10

- ___ 11. Within the simulation editor, select the process input.
- ___ 12. Click the **Input** tab.
- ___ 13. Verify that the start time of Time trigger is **Monday, January 5, 2009 9:00:00 AM** as defined in the global preferences.

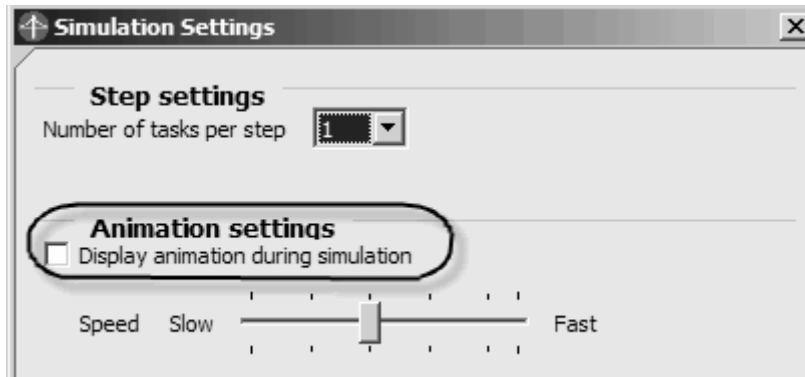
The screenshot shows the 'Time trigger' settings in the simulation editor. The 'Time trigger' checkbox is selected. Below it, the 'Start time' is set to 'Monday, January 5, 2009 9:00:00 AM GMT-8'.

- ___ 14. Set the **Total number of tokens** to 200.
- Click **Edit** next to **Total number of tokens**.
 - Enter 200 for a specific number of tokens.
 - Click **OK**.
- ___ 15. Click the background of the process diagram.
- ___ 16. Select the **Resource Pool** tab.
- ___ 17. Clear the check box next to **Role**.
This clears the check boxes for the **Approver**, **Data Entry**, and **Manager** roles.
- ___ 18. Save the simulation settings (Ctrl+S).
- ___ 19. Select the **Simulation Control Panel** tab.

___ 20. Click the **Menu** icon in the upper right corner of the pane and select **Setting**.



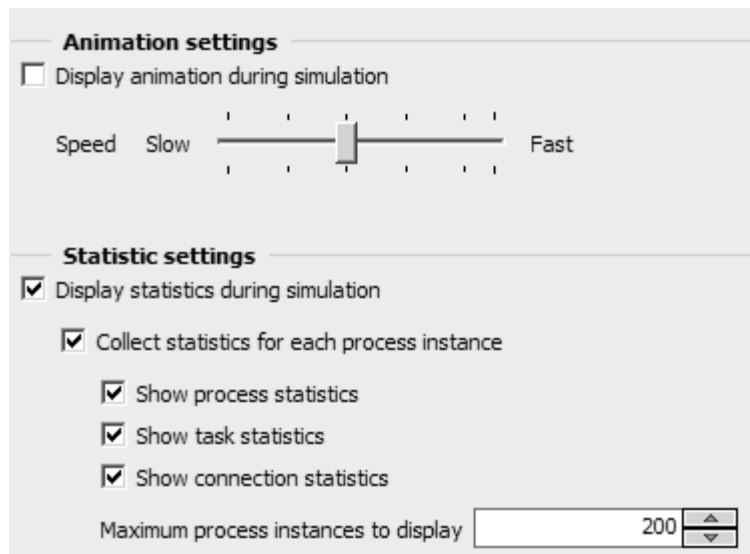
___ 21. In the **Simulation Settings** dialog box, clear the check box next to **Display animation during simulation**.



Removing on-screen animations allows for faster simulations.

___ 22. Change the value of **Maximum process instances to display** to 200.

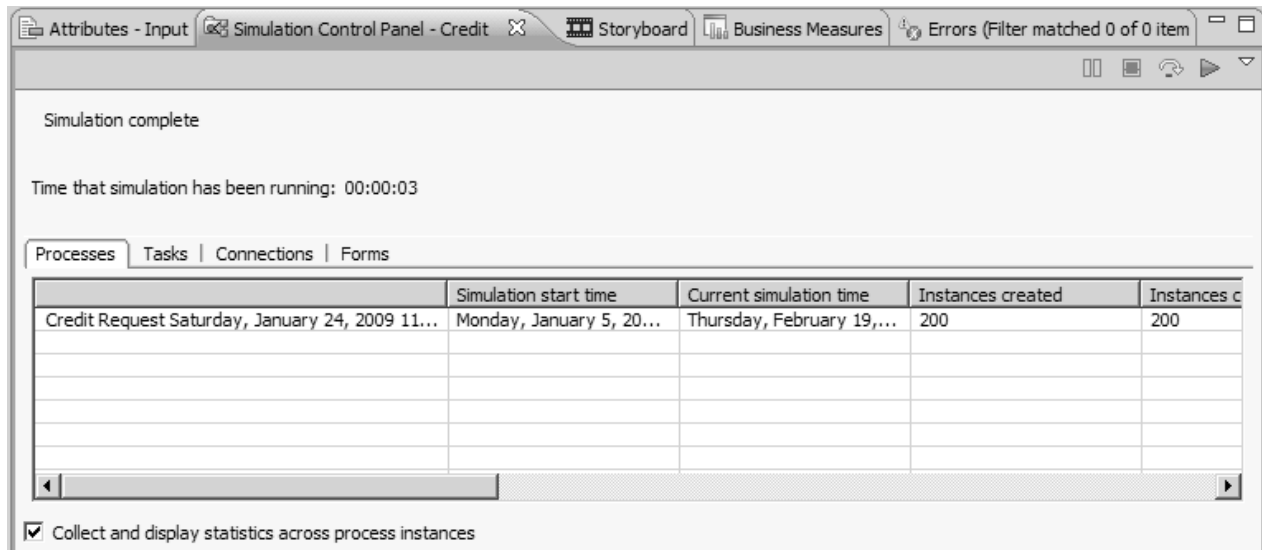
This will enable you to view simulation statistics for all 200 process instances in the Simulation Control Panel.



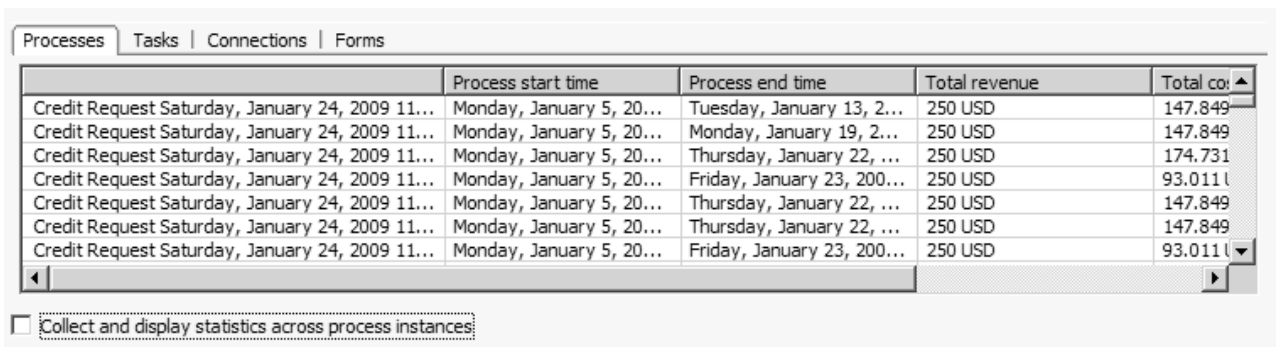
___ 23. Click **OK**.

___ 24. Click the **Run simulation** button at the top right corner of the **Simulation Control Panel**.

Since 200 tokens will be generated in this simulation, the simulation is supposed to take longer to complete; however, the animation was off, so it will run very quickly.



25. Click the **Collect and display statistics across process instances** check box to view generated statistics as averages for all process instances.

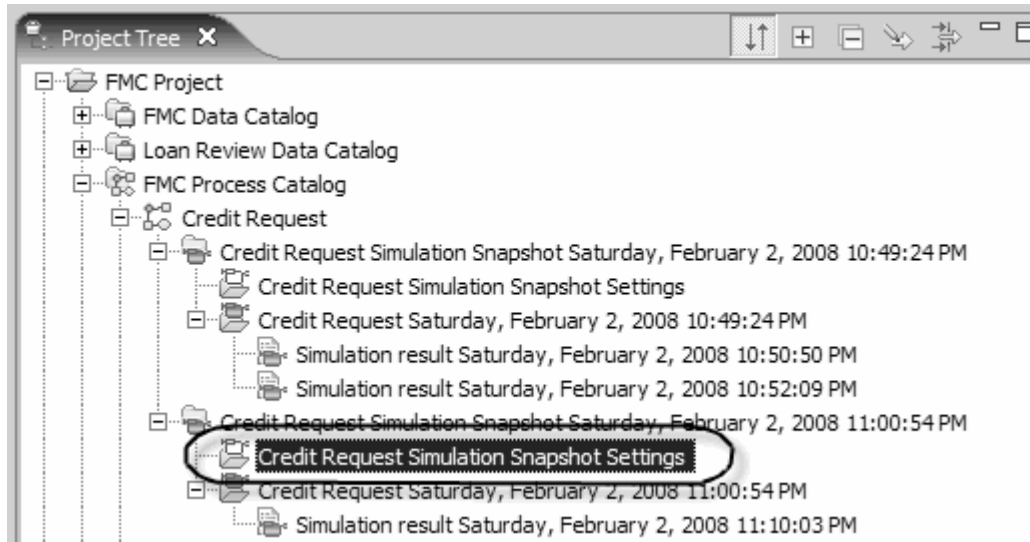


There were 200 instances created and 200 instances completed. In other words, there were 200 credit requests successfully passed though the simulation.

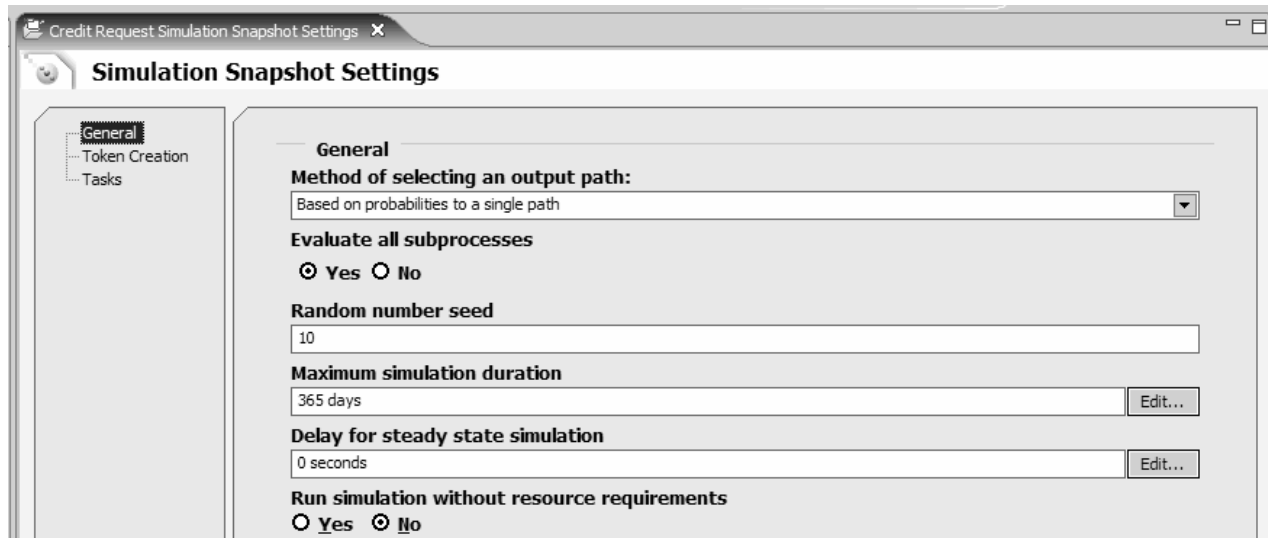
26. Close the **Credit Request (Simulate)** editor.

Part 6: Using local simulation attributes

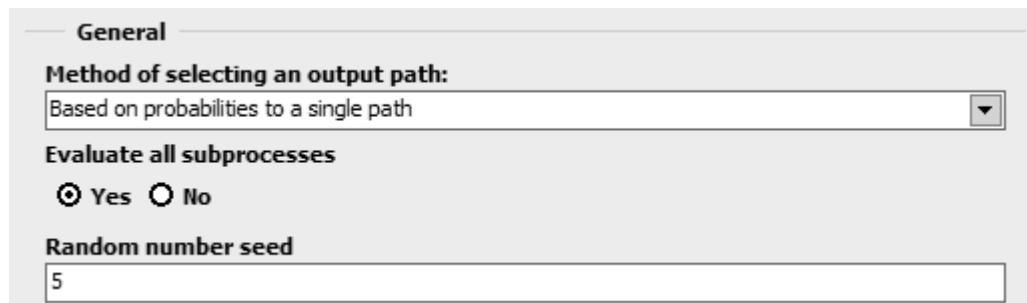
- ___ 1. From the Project Tree, double-click **Credit Request Simulation Snapshot Settings** that you just created.



Simulation Snapshot Settings appears on the right pane.

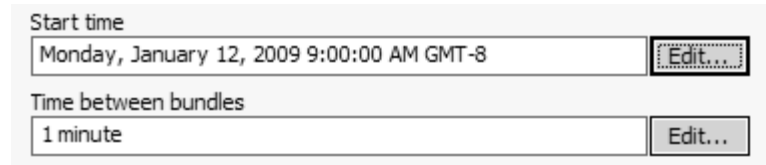


- ___ 2. Set the **Random Number Seed** to 5.



- ___ 3. Click **Token Creation** on the left to open **Token creation settings**.
- ___ 4. Click the **Edit** button next to **Start time** under **Time Trigger**.

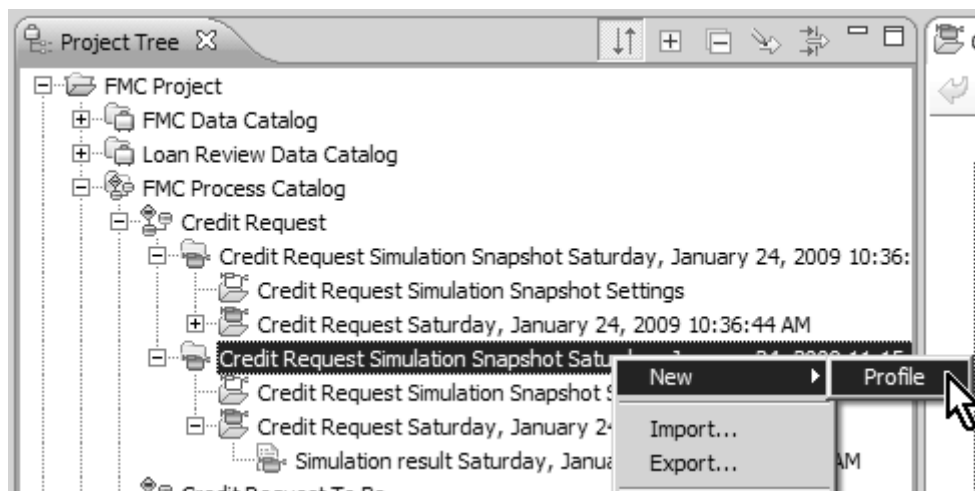
- ___ 5. Set the time to **Monday, January 12, 2009 8:00:00 AM** and click **OK**.



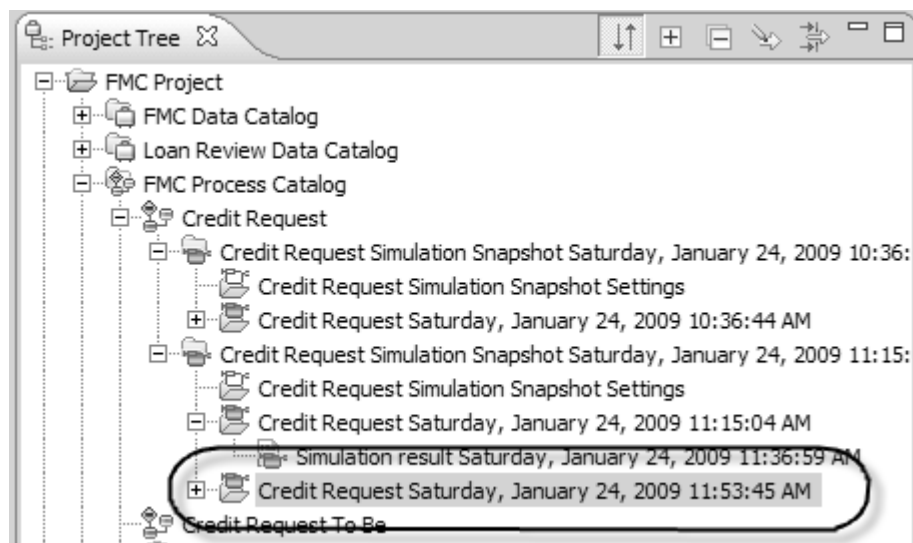
- ___ 6. Save the simulation settings (Ctrl+S).
 ___ 7. Close the **Simulation Snapshot Settings** by clicking **X** on the tab.

Part 7: Running simulation with local simulation attributes

- ___ 1. From the Project Tree, right-click the latest **Credit Request Simulation** snapshot and select **New > Profile**.



A new Credit Request simulation profile is created.



- ___ 2. In the **General tab** of the **Attributes** pane, click the **Edit** button next to **Process availability begins**.
 ___ 3. Set the value to **Monday, January 5, 2009 9:00:00 AM**.

- ___ 4. Verify that 5 is defined as the **Random number seed** as defined in the local preferences.
- ___ 5. Within the simulation editor, select the process input.
- ___ 6. Click the **Input** tab.
- ___ 7. Verify that the start time is **Monday, January 12, 2009 9:00:00 AM** as defined in the local preferences.

**Note**

If you click the **Remove token creation settings** button, and then click **Add token creation settings**, this will refresh the token creation settings and synchronize the local settings with the preferences you specified earlier.

- ___ 8. Set the **Total number of tokens** to 100.
 - ___ a. Click **Edit** next to **Total number of tokens**.
 - ___ b. Enter 100 for a specific number of tokens and click **OK**.
- ___ 9. Click the background of the process diagram.
- ___ 10. Select the **Resource Pool** tab.
- ___ 11. Clear the check box next to **Role**.
This clears the check boxes for the **Approver**, **Data Entry**, and **Manager** roles.
- ___ 12. Save the simulation settings (Ctrl+S).
- ___ 13. Select the **Simulation Control Panel** tab and click the **Run simulation** button at the top right corner.
- ___ 14. Examine the simulation results.

Simulation complete

Time that simulation has been running: 00:00:01

Processes | Tasks | Connections | Forms

	Simulation start time	Current simulation time	Instances created
Credit Request Saturday, January 24, 2009 11...	Monday, January 12, 2...	Tuesday, February 3, 2...	100

☒ Collect and display statistics across process instances

There were 100 instances created and 100 instances completed. In other words, 100 credit requests passed through the simulation successfully.

___ 15. Save changes (Ctrl+S).

Part 8: Using the Modeler help

Use the search function in Help to locate the following topics and answer the questions.

___ 1. You receive a message saying that there are not enough resources available to complete the simulation. What are the causes and possible resolution?

___ 2. How do you add breakpoints to a simulation?

___ 3. Exit WebSphere Business Modeler.

___ 4. Review the flashcards for this unit.

End of exercise

Exercise 4. Dynamic analysis

What this exercise is about

This exercise covers profile and dynamic analysis.

What you should be able to do

At the end of the exercise, you should be able to:

- Conduct profile analyses
- Perform dynamic analyses
- Perform aggregated analyses
- Perform process case summary analyses
- Generate and export reports

Requirements

Previous lab must be completed successfully.

Exercise instructions

Part 1: Opening workspace

1. Launch WebSphere Business Modeler and use the following workspace:
C:\workspaces\Lab17_workspace

Part 2: Conducting profile analysis

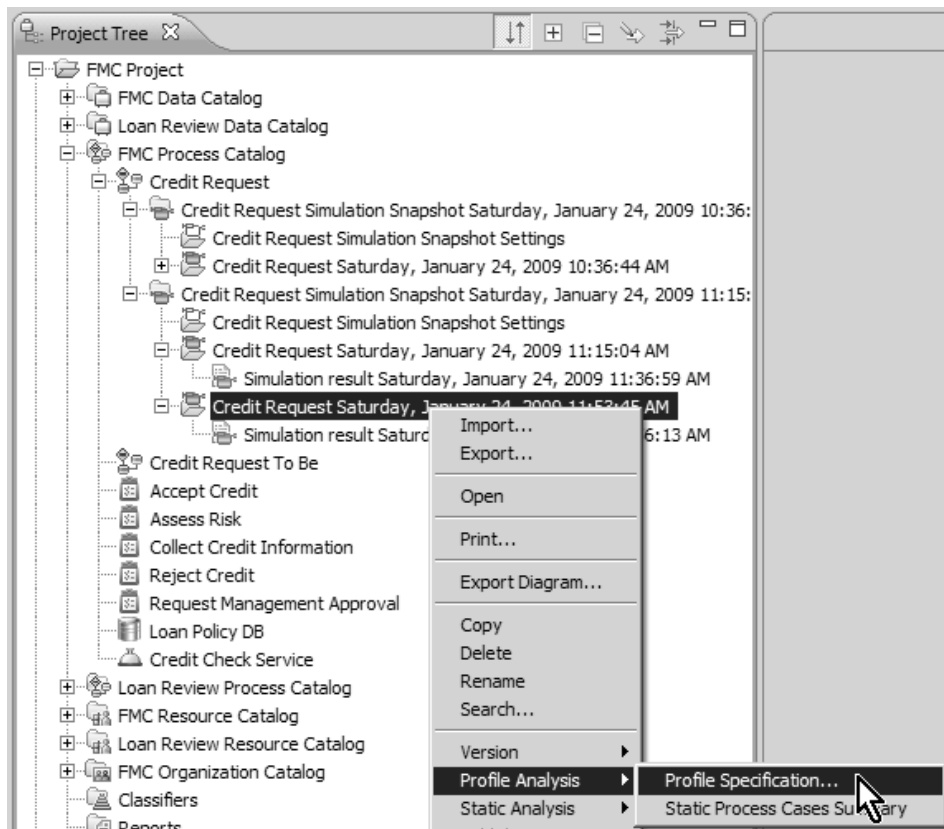
The simulation profile specification analysis displays the simulation settings for each of the activities in a simulation profile. This analysis derives its results from the simulation profile, not from a simulation result. This analysis can provide a means of reviewing, documenting, and validating the values that are used during the run of a simulation.



Note

You do not need to run a simulation to perform this analysis.

1. From the **Project Tree**, select and expand **Credit Request**.
2. Right-click the last simulation process of **Credit Request** in the Project Tree and select **Profile Analysis > Profile Specification**



3. Click **Select All** from the customize analysis.

___ 4. Click **OK**.

The analysis results are displayed:

Profile Specification Credit Request Saturday, January 24, 2009 11:53:45 AM 12:12:34 PM			
Activity Name	Activity Duration	Requirement Type	Resource or Role Name
+ Accept Credit	1 hour		
+ Accept Credit?			
+ Approve Credit?			
+ Assess Risk	1 minute		
+ Collect Credit Information	30 minutes		
+ Reject Credit	10 minutes		
+ Request Management Approval	2 hours		

___ 5. To examine the details, right-click from the result table and select **Expand All**.

___ 6. Right-click the results, and select **Close All**.

Part 3: Conducting static process case summary

The static process case summary shows summary information describing each of the process cases (paths) through the process recorded by the simulation profile. Use this analysis to get a comprehensive idea of the possible paths through your process including the costs and revenue generated by each possible path and the expected relative frequencies of each path being followed.



Note

You do not need to run a simulation to perform this analysis.

___ 1. Right-click the last simulation process of **Credit Request** in the Project Tree and select **Profile Analysis > Static Process Case Summary**.

___ 2. Click **OK**.

You need to have created a simulation profile to complete this analysis. The model cannot contain any of the following elements which keep Modeler from determining a finite set of process cases:

- repositories
- notification
- broadcasters
- notification receivers
- observers
- timers
- maps

The presence of these elements causes an error during analysis. Additionally, any divergence in the process flow must be recombined according to the following rules:

- Multiple paths originating from a fork element or from a single output criterion of an activity must recombine through either a join or through a single input criterion of another activity.
- Multiple paths originating from a decision element or from multiple output criteria of a single activity must recombine through either a merge or through multiple input criteria in another activity.

The analysis results are displayed:

Static Process Cases Summary Credit Request Saturday, January 24, 2009 11:53:45 AM 12:14:01 PM								
Profile Specification Credit Request Saturday, January 24, 2009 11:53:45... Static Process Cases Summary Credit Requ								
Case Name	Activity Name	Cost	Revenue	Run Cost	Resource Cost	Profit	Elapsed Duration	Working Duration
+ Case 1		U...	USD2...	USD12...	USD22.85	US...	2 hours 30 mi...	2 hours 30 min...
+ Case 2		U...	USD2...	USD50...	USD43.01	US...	3 hours 40 mi...	3 hours 40 min...
+ Case 3		U...	USD2...	USD12...	USD49.73	US...	4 hours 30 mi...	4 hours 30 min...
All Cases		U...	USD2...	USD10...	USD34.61	US...	3 hours 17 mi...	3 hours 17 min...

- ___ 3. Expand each case to examine the details.
- ___ 4. When done, right-click the results, and select **Close All**.

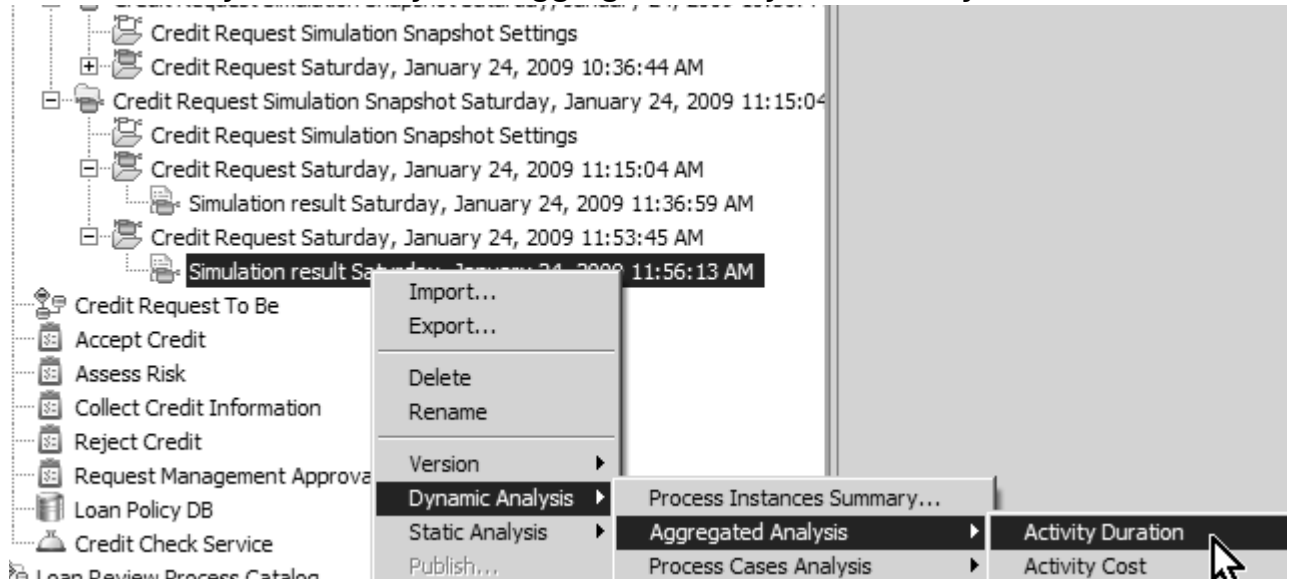
Part 4: Conducting dynamic analysis: aggregated analysis

You can analyze process simulation results to extract specific information on the monetary results, times, and statistic generated from running a simulation. From dynamic analysis, you can identify problems in the way the process currently works and you can compare the results that you produce when you simulate different variations of the same process.

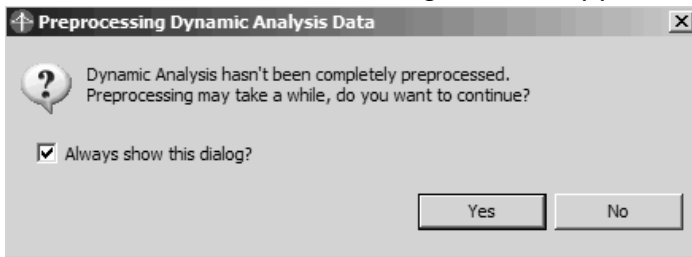
Aggregated analysis shows aggregate results for elements that have multiple instances or are executed multiple times in the simulation of a process, such as an activity or a resource.

- ___ 1. From the **Project Tree**, select and expand **Credit Request**.

2. Right-click the last simulation results of **Credit Request** in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Activity Duration**.



3. Click **Yes** if the following window appears.



The analysis results are displayed:

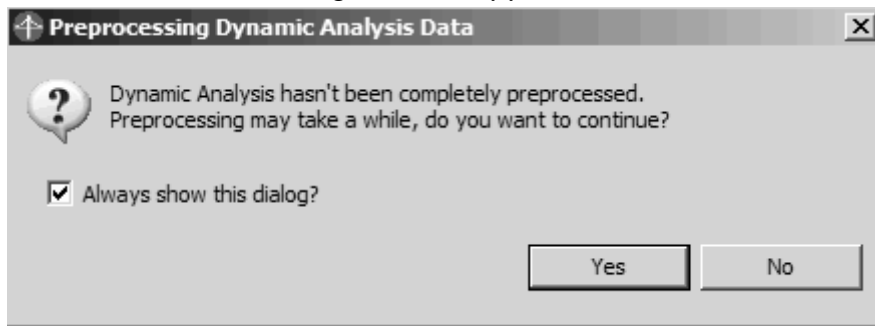
Activity Duration Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:56:13 AM			
Activity Name	Average Elapsed Duration	Average Delay Duration	Average Throughput
Credit Request	15 days 3 hours 36 sec...	14 days 23 hours 40 ...	0.00 work item / h...
Accept Credit	6 days 15 hours 22 min...	6 days 14 hours 22 m...	0.01 work item / h...
Accept Credit?	0 seconds	0 seconds	undefined
Approve Credit?	0 seconds	0 seconds	undefined
Assess Risk	4 days 15 hours 19 min...	4 days 14 hours 19 m...	0.01 work item / h...
Collect Credit Information	3 days 12 hours 8 minu...	3 days 11 hours 38 m...	0.01 work item / h...
Merge	0 seconds	0 seconds	undefined
Reject Credit	6 days 3 hours 24 minu...	6 days 3 hours 14 mi...	0.01 work item / h...
Request Management Approval	21 hours 25 minutes 17...	19 hours 25 minutes ...	0.05 work item / h...

Activity duration analysis shows the average durations for all instances of each activity in the current simulation result.

You can use this analysis to determine which activities in a process require the longest durations to complete. After identifying these activities, you may then decide to streamline these activities, or to add more resources to reduce delay durations and elapsed durations.

4. Right-click the results, and select **Close All**.

- ___ 5. Right-click the last simulation results of **Credit Request** in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Activity Cost**.
- ___ 6. Click **Yes** if the following window appears.



The analysis results are displayed:

Activity Cost Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:53:45 AM					
Activity Cost Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:53:45 AM					
Activity Name	Average Revenue	Average Run Cost	Average Delay Cost	Average Resource Cost	Average Cost
Credit Request	USD250.00	USD107.75	USD0.00	USD35.27	USD143.02
Accept Credit	USD0.00	USD75.00	USD0.00	USD8.29	USD83.29
Accept Credit?	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Approve Credit?	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Assess Risk	USD0.00	USD50.00	USD0.00	USD10.76	USD60.76
Collect Credit Infor...	USD250.00	USD0.00	USD0.00	USD4.03	USD4.03
Merge	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Reject Credit	USD0.00	USD0.00	USD0.00	USD1.40	USD1.40
Request Managem...	USD0.00	USD0.00	USD0.00	USD26.99	USD26.99

Activity cost analysis shows the average cost and revenue for all instances of each activity in the current simulation result.

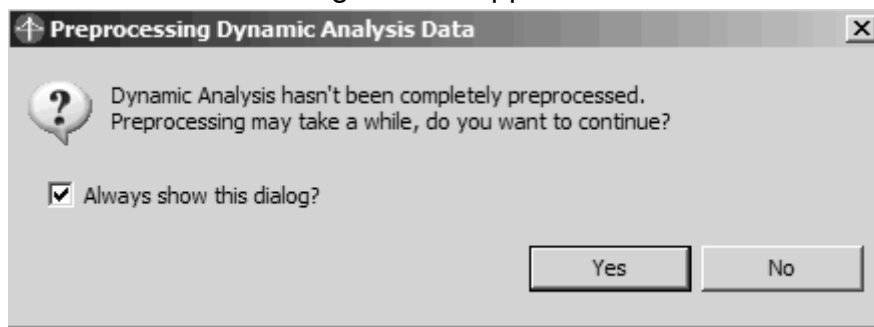
This analysis enables you to quickly determine where in a process the most money is spent or earned. You can also determine the relative importance of expenses that result from the inherent cost of completing each activity, from resource costs, or from idle time while waiting for resources to become available. By understanding where costs and revenues are generated throughout the process, you can identify potential areas for improving revenues or reducing costs.



Note

If you enable **Evaluate all subprocesses** before you run the simulation, then results are generated for all activities contained within subprocesses. Each activity contained within a subprocess is therefore represented in the dynamic analysis results. If you disable **Evaluate all subprocesses** when you run the simulation then the subprocesses are treated as if they are tasks, and any values related to them are based on the attributes of the top level subprocess.

- ___ 7. Right-click the results, and select **Close All**.
- ___ 8. Right-click the last simulation results of **Credit Request** in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Activity Cost Per Time Unit**.
- ___ 9. Click **Yes** if the following window appears.

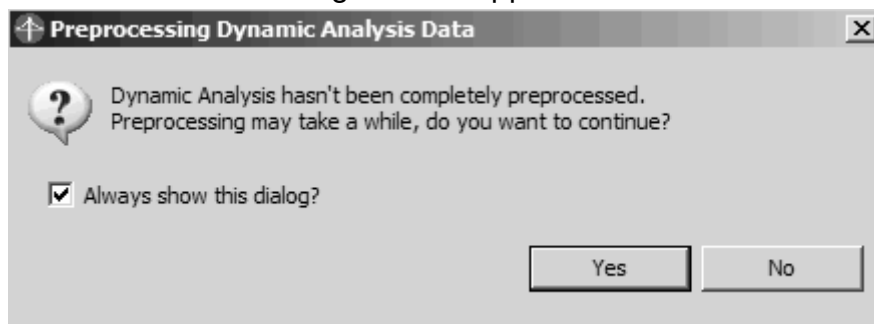


The analysis results are displayed:

Activity Cost Per Time Unit Simulation result Saturday, January 24, 2009 11:	
Activity Name	Average Activity Cost Per Time Unit
Credit Request	USD0.39 / hour
Accept Credit	USD0.52 / hour
Accept Credit?	undefined
Approve Credit?	undefined
Assess Risk	USD0.55 / hour
Collect Credit Information	USD0.05 / hour
Merge	undefined
Reject Credit	USD0.01 / hour
Request Management Approval	USD1.26 / hour

The **Activity Cost Per Time Unit** analysis computes the costs per hour for each activity in a simulated process.

- ___ 10. Right-click the results, and select **Close All**.
- ___ 11. Right-click the last simulation results of **Credit Request** in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Activity Statistics**.
- ___ 12. Click **Yes** if the following window appears.



The analysis results are displayed:

Activity Statistics Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:53:45 AM 12:24:49 PM				
Activity Name	Number of Successful Instances	Number of Timed Out Instances	Number of Failed Instances	Total Instances
Credit Request	100	0	0	100
Accept Credit	77	0	0	77
Accept Credit?	100	0	0	100
Approve Credit?	51	0	0	51
Assess Risk	100	0	0	100
Collect Credit Information	100	0	0	100
Merge	77	0	0	77
Reject Credit	23	0	0	23
Request Management Approval	51	0	0	51

Activity statistics analysis shows the statistics generated by all instances of each activity across all process instances in the current simulation result.

You can use this analysis when you run high volume simulations to determine the overall success or failure of the process and its activities. By understanding which activities had highest number of failures or the greatest rate of failure, you can decide where to focus your efforts to improve the process. You may determine, for example, that more resources need to be made available to enable more of a certain activity to succeed, or that the process flow should be changed so that activities are performed in sequence rather than in parallel paths.

___ 13. Right-click the results, and select **Close All**.

___ 14. Right-click the simulation results in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Resource Usage**.

The analysis results are displayed:

Resource Usage Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:53:45 AM 12:25:55									
Resource or Role Name	Alloc...	Allo...	Alloc...	Allocati...	Allocat...	Qu...	Allocation Duration	Shortage Duration	Allocation Cost
Marion							2 hours	23 hours 54 min...	USD26.99
Mitch							1 hour	4 days 15 hour...	USD10.76
Sylvain							39 minutes 15 s...	5 days 4 hours ...	USD5.37

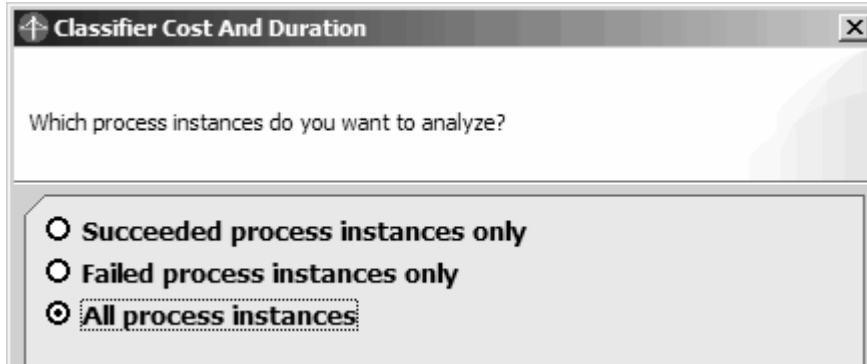
___ 15. To examine the details, right-click the results, and select **Expand All**.

Resource Usage Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:53:45 AM 12:25:55 PM									
Resource or Role Name	Alloc...	Allo...	Alloc...	Allocati...	Allocat...	Qu...	Allocation Duration	Shortage Duration	Allocation Cost
Marion							2 hours	23 hours 54 min...	USD26.99
	Mond...	Mon...	Cred...	Reques...	Monda...	1 unit	30 minutes	0 seconds	USD6.72
	Mond...	Mon...	Cred...	Reques...	Monda...	1 unit	1 hour 30 minutes	1 hour	USD20.16
	Mond...	Mon...	Cred...	Reques...	Monda...	1 unit	2 hours	2 hours	USD26.88
	Mond...	Mon...	Cred...	Reques...	Monda...	1 unit	1 hour	2 hours	USD13.44
	Tues...	Tue...	Cred...	Reques...	Monda...	1 unit	1 hour	15 hours 30 min...	USD13.44
	Tues...	Tue...	Cred...	Reques...	Tuesd...	1 unit	2 hours	0 seconds	USD26.88
	Tues...	Tue...	Cred...	Reques...	Tuesd...	1 unit	2 hours	2 hours	USD26.88
	Tues...	Tue...	Cred...	Reques...	Tuesd...	1 unit	30 minutes	0 seconds	USD6.72

The **Resource Usage** analysis shows information on usage of each resource that is allocated in a process simulation.

___ 16. Right-click the results, and select **Close All**.

- ___ 17. Right-click the simulation results in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Classifier Cost And Duration**.
- ___ 18. Select **All process instances**.



- ___ 19. Click **Finish**.
- ___ 20. To examine the details, right-click the results, and select **Expand All**.

The analysis results are displayed:

Classifier Cost And Duration Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Rec			
Classifier	Classifier Value	Average Elapsed Duration	Average Cost
<input type="checkbox"/> Value added		4 days 7 hours 25 minutes...	USD40.75
	Business value added	4 days 15 hours 19 minute...	USD60.76
	No value added	3 days 23 hours 58 minute...	USD3.54
	Real value added	4 days 8 hours 24 minutes...	USD60.86

Classifier costs and durations analysis shows the costs and durations of activities associated with each classifier value used in a process.

- ___ 21. Right-click the results, and select **Close All**.

Part 5: Conducting dynamic analysis: resource usage

Resource usage analysis provide information on resource usage during a simulation run.

- ___ 1. Right-click the last simulation results of **Credit Request** in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Resource Usage Summary**.

The analysis results are displayed:

Resource Usage Summary Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 20						
Resource or Role Name	Units Available	Availability Duration	Availability	Utilization	Idle Duration	Maximum Units Used
Marion	1 unit	6 days 19 hours	23.20%	62.58%	2 days 13 ...	1 unit
Mitch	1 unit	6 days 19 hours	23.20%	61.35%	2 days 15 ...	1 unit
Sylvain	1 unit	6 days 19 hours	23.20%	80.27%	1 day 8 h...	1 unit

Resource Usage Summary provides aggregated summary information for each resource that came into use during a simulation run. In contrast to other analyses, the resource usage summary provides information about resource usage without associating the uses with the activities in the model. Use this analysis to understand which bulk and individual

resources are being used or are sitting idle during a process' run and to get a high-level picture of the costs associated with their use.

___ 2. You can select specific column headings to be displayed.

___ 3. Right-click the results, and select **Select Column**.

___ 4. Click **Deselect All**.

___ 5. Check the following Column Headings:

- Resource or Role Name (Required by default)
- Average Usage Duration
- Average Usage Cost
- Total Usage Duration
- Total Usage Cost

___ 6. Click **OK**.

The analysis results are displayed:

Resource Usage Summary Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, Jan				
Resource or Role Name	Average Usage Duration	Average Usage Cost	Total Usage Duration	Total Usage Cost
Marion	2 hours	USD26.99	4 days 6 hours	USD1,376.65
Mitch	1 hour	USD10.76	4 days 4 hours	USD1,076.34
Sylvain	39 minutes 15 seconds	USD5.37	5 days 10 hours 5...	USD1,073.98

___ 7. Right-click the results, and select **Close All**.

___ 8. Right-click the simulation results in the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Resource Allocation Summary**.

___ 9. Expand **Role** from the results table.

The analysis results are displayed:

Resource Allocation Summary Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:53:45 AM					
Resource Requirement	Resource or Role Name	Average Units Used	Average Usage Duration	Average Usage Cost	Average Shortage Duration
<input type="checkbox"/> Role					
	Approver	undefined	1 hour	USD10.76	4 days 15 hours 48 minu...
	Approver / Mitch	1 unit	1 hour	USD10.76	4 days 15 hours 48 minu...
	Data Entry	undefined	39 minutes 15 seconds	USD5.37	5 days 4 hours 21 minut...
	Data Entry / Sylvain	1 unit	39 minutes 15 seconds	USD5.37	5 days 4 hours 21 minut...
	Manager	undefined	2 hours	USD26.99	23 hours 54 minutes 7.0...
	Manager / Marion	1 unit	2 hours	USD26.99	23 hours 54 minutes 7.0...

Resource Allocation Summary provides summary information regarding the usage of resources in fulfilling the resource and roll requirements of the process during simulation. In contrast to other analyses, the information in this analysis does not focus on the activity or process case as the primary category of organization. Instead, it aggregates based on the role and resource requirements that exist in the process as a whole. This analysis organizes its information based on the resource and role requirements of the process. As a result, if a resource is used both to fulfill an explicit resource requirement and to fulfil a role

requirement, then those two uses will be recorded separately. Use this analysis to understand how the resources in your model are being used to fulfil the role and resource requirements during simulation.

Part 6: Conducting dynamic analysis: process analysis

- ___ 1. Right-click the simulation results in the Project Tree and select **Dynamic Analysis > Process Cases Analysis > Process Cases Summary**.
- ___ 2. Select **All process instances**.
- ___ 3. Click **Finish**.

The analysis results are displayed:

Resource Allocation Summary Simulation result Saturday, January 24, 2009 11...				Process Cases Summary Simulation result Sa		
Case Name	Activity Name	Resource or Role Name	Average Cost	Average Revenue	Average Run Cost	Average Delay C
+ Case 1			USD 148.10	USD 250.00	USD 125.00	USD 0.
+ Case 2			USD 175.10	USD 250.00	USD 125.00	USD 0.
+ Case 3			USD 93.15	USD 250.00	USD 50.00	USD 0.
All Cases			USD 143.02	USD 250.00	USD 107.75	USD 0.

- ___ 4. To examine the details, right-click the results, and select **Expand All**.

Resource Allocation Summary Simulation result Saturday, January 24, 2009 11...				Process Cases Summary Simulation result Sa		
Case Name	Activity Name	Resource or Role Name	Average Cost	Average Revenue	Average Run Cost	Average Delay C
- Case 1			USD 148.10	USD 250.00	USD 125.00	USD 0.
-	Credit Req...		USD 148.10	USD 250.00	USD 125.00	USD 0.
		Mitch				
		Sylvain				
-	Accept Credit		USD 83.31	USD 0.00	USD 75.00	USD 0.
		Sylvain				
	Accept Cre...		USD 0.00	USD 0.00	USD 0.00	USD 0.
-	Assess Risk		USD 60.76	USD 0.00	USD 50.00	USD 0.
		Mitch				
-	Collect Cre...		USD 4.03	USD 250.00	USD 0.00	USD 0.
		Sylvain				
	Merge		USD 0.00	USD 0.00	USD 0.00	USD 0.
- Case 2			USD 175.10	USD 250.00	USD 125.00	USD 0.
-	Credit Req...		USD 175.10	USD 250.00	USD 125.00	USD 0.
		Marion				

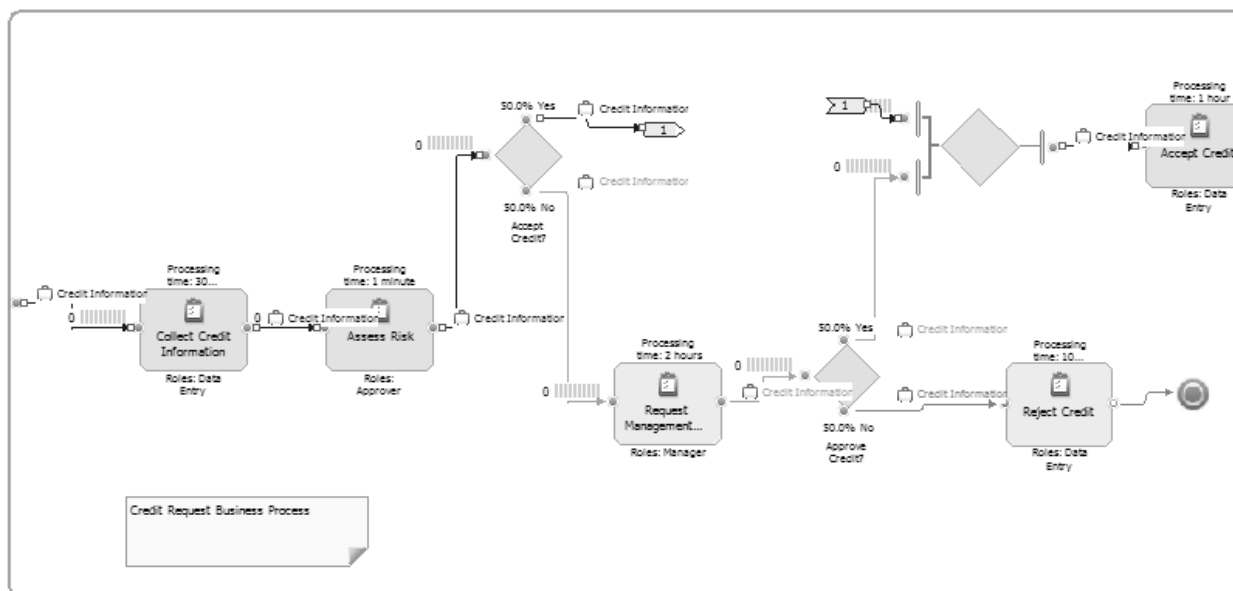
The **Process Cases Summary** analysis displays information about all process instances created during a simulation.

Processes that contain branches and decisions have multiple possible execution paths, also known as cases. This analysis lists the cases for a simulated process, and for each case shows the percentage of all process instances that match the path defined by that case. This analysis also lists process instances created in the simulation, grouped by case.

___ 5. Double-click **Case 1** from the results.

Resource Allocation Summary		Simulation result Saturday, January 24, 2009 11...		Process Cases Summary		Simulation result Sa	
Case Name	Activity Name	Resource or Role Name	Average Cost	Average Revenue	Average Run Cost	Average Delay C	
<input checked="" type="checkbox"/> Case 1			USD 148.10	USD 250.00	USD 125.00	USD 0	
<input type="checkbox"/>	Credit Req...		USD 148.10	USD 250.00	USD 125.00	USD 0	
		Mitch					
		Sylvain					
<input type="checkbox"/>	Accept Credit		USD 83.31	USD 0.00	USD 75.00	USD 0	

The **Process Simulate** diagram opens.



The path of **Case 1** is highlighted in blue in the process diagram. As you select other cases, the path for that case will be highlighted in the process diagram.

___ 6. Right-click the results, and select **Close All**.

___ 7. Right-click the simulation results in the Project Tree and select **Dynamic Analysis > Process Cases Analysis > Process Duration**.

___ 8. Select **All process instances** and click **Finish**.

The analysis results are displayed:

Process Duration Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request				
Case Name	Distribution	Success Status	Average Elapsed Duration	Average Throughput
Case 1	49.00%	Succeeded	14 days 23 hours 22 mi...	0.00 work item / h...
Case 2	28.00%	Succeeded	14 days 8 hours 36 min...	0.00 work item / h...
Case 3	23.00%	Succeeded	16 days 9 hours 9 minu...	0.00 work item / h...
All Cases			15 days 3 hours 36 sec...	0.00 work item / h...

The **Process Duration** analysis shows process elapsed duration and throughput details for each process case in a simulation.

Process elapsed duration is the duration that a process case takes if started at a specific time and date. Process elapsed duration includes transfer times between activities and the elapsed durations of all activities on the critical path. The critical path is defined as the processing path that has the longest duration of all parallel paths in the process case. Calculations are performed per case by getting the simple average of the process instances duration records in a case.

- ___ 9. Right-click the results, and select **Close All**.
- ___ 10. Right-click the simulation results in the Project Tree and select **Dynamic Analysis > Process Cases Analysis > Process Cost**.
- ___ 11. Select **All process instances** and click **Finish**.

The analysis results are displayed:

Process Cost Simulation result Saturday, January 24, 2009 11:56:13 AM Credit Request Saturday, January 24, 2009 11:53:45						
Case Name	Distribution	Success Status	Average Revenue	Average Run Cost	Average Delay Cost	Average Resource Co
Case 1	49.00%	Succeeded	USD250.00	USD125.00	USD0.00	USD23.
Case 2	28.00%	Succeeded	USD250.00	USD125.00	USD0.00	USD50.
Case 3	23.00%	Succeeded	USD250.00	USD50.00	USD0.00	USD43.
All Cases			USD250.00	USD107.75	USD0.00	USD35.

The **Process Cost** analysis shows the average cost and revenue for all process instances in each case in the current simulation result, and the weighted average costs and revenues for all process cases.

- ___ 12. Right-click the results, and select **Close All**.
- ___ 13. Right-click the simulation results in the Project Tree and select **Dynamic Analysis > Process Cases Analysis > Process Activities Total Time**.
- ___ 14. Select **All process instances** and click **Finish**.

The analysis results are displayed:

Process Cost Simulation result Saturday, January 24, 2009 11:56:13 AM Cre...				Process Activi
Case Name	Distribution	Success Status	Average Elapsed Duration	
Case 1	49.00%	Succeeded	14 days 23 hours 22 minutes 18.367 seconds	
Case 2	28.00%	Succeeded	14 days 8 hours 36 minutes 27.857 seconds	
Case 3	23.00%	Succeeded	16 days 9 hours 9 minutes 49.565 seconds	
All Cases			15 days 3 hours 36 seconds	

Process activities total time analysis shows total duration of activities in a process case.

Process activities total time is the total duration of activities in a process case. Process activities total time includes the durations of all the activities in the process, excluding subprocesses and loops.

This analysis, like other process case analyses, may reveal unexpected results within specific process cases. For example, you may determine that the average elapse duration in a particular process case is unacceptably high. As a result of reviewing the information

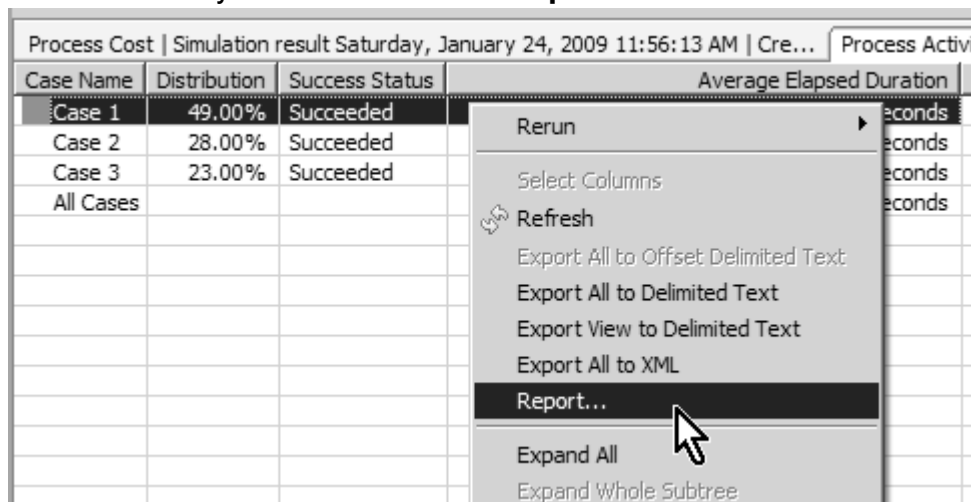
that this analysis presents, you may decide that you need to modify a process model or reset resource levels, or you may determine that you want to investigate further with another type of process case analysis such as process resource analysis. Alternatively, you can examine the duration results for specific process instances within a process case by running the process instance summary analysis and then the process instance time analysis.

Part 7: Generating and exporting reports

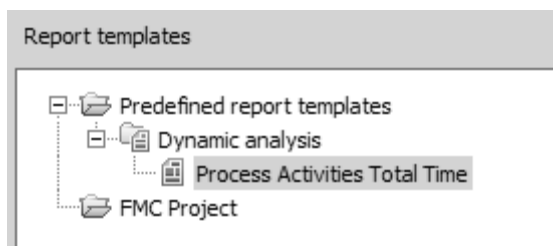
This section of the lab demonstrates how to generate and export the results of any analysis that you have run and have not closed in the Analysis view.

The **Process activities total time** results are displayed in the **Dynamic Analysis view** in the bottom right pane.

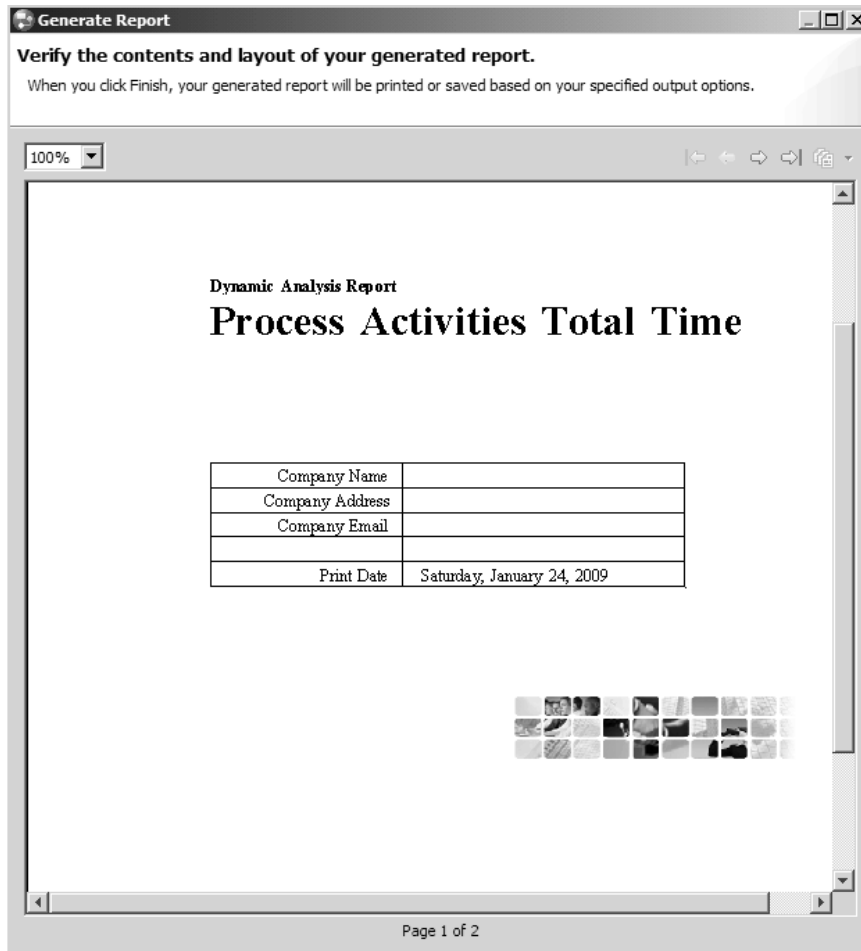
- ___ 1. Right-click the analysis view and select **Report**.



- ___ 2. Select **Preview and save** from the **Generate Report** window.
- ___ 3. Select **Microsoft Word (.docx)** as format.
- ___ 4. Enter **Process activities total time** as the report name
- ___ 5. Click **Browse** to select path: C:\My Document
- ___ 6. Click **OK**.
- ___ 7. Click **Next**.
- ___ 8. Select **Process Activities Total Time** as Report templates.



- ___ 9. Click **Next**.
- ___ 10. Click **Next** to skip the parameter fields.
- ___ 11. A **Preview Dialog** will display the report:



- ___ 12. After examining this report, click **Finish**.

The **Process activities total time.docx** file can be located in the **My Document** directory.

Part 8: Using the Modeler help

Use the search function in Help to locate the following topics and answer the questions.

- ___ 1. Which analysis does it show process elapsed duration and throughput details for each process case in a simulation?
-
- ___ 2. Which analysis does it show the detailed duration information of each activity instance within a process instance?
-
- ___ 3. Exit WebSphere Business Modeler.

___ 4. Review the flashcards for this unit.

End of exercise

Exercise 5. Process improvement

What this exercise is about

This exercise covers process improvement.

What you should be able to do

At the end of the exercise, you should be able to:

- Redesign process models
- Conduct goal analyses
- Conduct comparison analyses

Exercise instructions

Part 1: Opening workspace

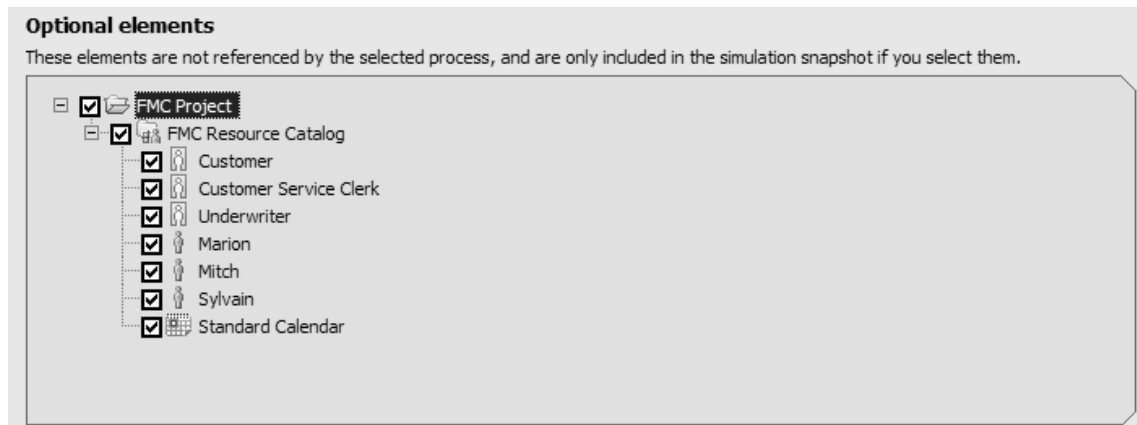
- ___ 1. Launch WebSphere Business Modeler and use the following workspace:
C:\workspaces\Lab18_workspace

Part 2: Setting up for simulation

Simulation is a faster-than-real-time performance of a process in a virtual environment. Simulation enables organizations to observe how a process will perform in response to variations of inputs to the process, just as in a real-life work environment. Simulation also provides the ability to vary process input volume over time by adjusting resources and current allocations. Simulation output provides detailed information regarding resource utilization levels and the results of cost and cycle-time calculations.

Now you will conduct analysis from the baseline model, and you will rename the To Be model as the baseline. Rename the **Credit Request To Be** to **Credit Request Baseline**.

- ___ 1. From the Project Tree, right-click **FMC Project > FMC Process Catalog > Credit Request To Be**, and select **Rename**.
- ___ 2. Change the process name to **Credit Request Baseline**.
- ___ 3. Right-click **Credit Request Baseline** and Select **Simulate**.
- ___ 4. During the simulation, resources and timetable should be included. Select **FMC Resource Catalog** from the **Optional elements** section.



- ___ 5. Click **OK**.
- ___ 6. Click **Yes**.
- ___ 7. Click **OK**.

After the simulation snapshot has been created, a simulation editor opens.

The **Credit Request Baseline (Simulate)** diagram opens on the right pane.

- ___ 8. Click the background of the **Credit Request Baseline (Simulate)** diagram and refer to the **Attributes** pane to view the attributes for the process.

- ___ 9. In the **General** tab of the **Attributes** pane, set **Random number seed** to 10.
- ___ 10. Select the **Inputs** tab.
- ___ 11. Click the input row under the **Token creation** settings.

Overview | General | **Inputs** | Input Logic | Resource Pool

Change the settings for creating tokens associated with inputs.

Name	Associated data	Minimum	Maximum	Input source
Input	Credit Information	1	1	Flow

- ___ 12. Scroll down to change the value for **Total number of tokens** to 10.
- ___ 13. Click **OK**.
- ___ 14. Under **Time Trigger**, change the **Start time** to **Monday, January 5, 2009 at 8:00:00 AM** by clicking the **Edit** button.
- ___ 15. Click the **Resource Pool** tab.

Resource pool is where you can specify the resources that will be made available to a process during a process simulation.

A resource can be a person, equipment, or material used to perform a task or a project. Each resource is a particular occurrence or example of a resource definition. If you have a resource definition called Service Vehicle, an example of a resource would be Service Vehicle #3.

Roles are the actions, authorities, and qualifications assigned to or expected of a person or group. For example, an employee resource could have the role of customer service representative, supervisor, or manager.

- ___ 16. Under **Resource pool**, scroll up to **Role** and clear the check box next to **Role**.

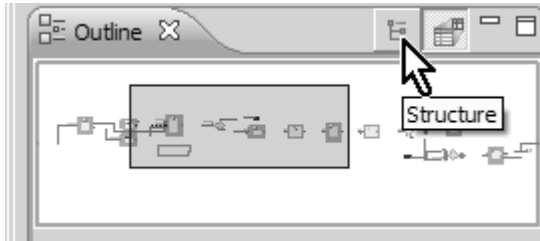
You need to clear the check box next to **Role** because you want to run the simulation using only the resources available, not roles.

Select the resources that are available to the simulation.

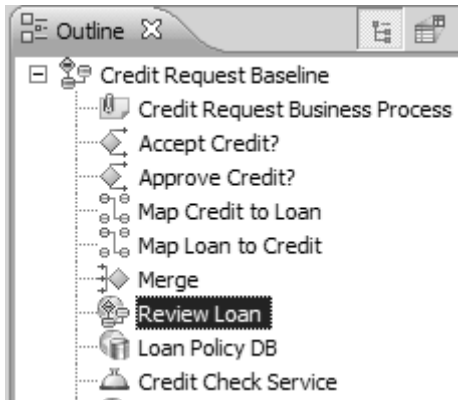
☐ **Role**
 ☐ Approver
 ☐ Customer
 ☐ Customer Service Clerk
 ☐ Data Entry
 ☐ External Entity
 ☐ Manager
 ☐ Underwriter
☒ **Individual resource**
 ☒ Marion
 ☒ Mitch
 ☒ Sylvain
☒ **Bulk resource**
 ☒ Customer Svc Clerk - Bulk

- ___ 17. Press **Ctrl-S** to save.

- ___ 18. To define the task durations inside the subprocess **Review Loan**, go to the Outline pane and click the **structure** button.



- ___ 19. Expand the **Credit Request Baseline** process.
- ___ 20. Double-click **Review Loan** from the list.



The overview of **Review Loan** subprocess is displayed in the Attributes pane.

Attributes - Review Loan | Business Measures | Static Analysis | Errors (Filter matched 0 of 0 items)

Overview | General | Cost and Revenue | Duration | Inputs | Input Logic | Output Logic | Business Item Creation


Use the table to review and change some of the more commonly used activity and decision attributes. Selecting an activity:

"Evaluate all subprocess" is set to "Yes".

☐ Hide task/process attributes ☐ Hide decision/loop attributes

Name	Processing ...	Resource wait time	Processing cost	Proces...	Startup cost
Accept Credit	00:01:00:0...	365:00:00:00.000	75	USD	0
Collect Credit Information	00:00:30:0...	365:00:00:00.000	0	USD	0
Assess Risk	00:01:00:0...	365:00:00:00.000	50	USD	0
Request Management ...	00:02:00:0...	365:00:00:00.000	0	USD	0
Reject Credit	00:00:10:0...	365:00:00:00.000	0	USD	0
Credit Check Service	00:00:00:0...	365:00:00:00.000	0	USD	0
Review Loan	00:00:00:0...	365:00:00:00.000	0	USD	0
Map Credit to Loan	00:00:00:0...	365:00:00:00.000	0	USD	0
Map Loan to Credit	00:00:00:0...	365:00:00:00.000	0	USD	0

___ 21. Expand **Review Loan** from the name column.

Name	Processing ...	Resource wait time	Processing cost	Proces...
Reject Credit	00:00:10:0...	365:00:00:00.000	0	USD
Credit Check Service	00:00:00:0...	365:00:00:00.000	0	USD
 Review Loan	00:00:00:0...	365:00:00:00.000	0	USD
Contact Customer	00:00:00:0...	365:00:00:00.000	0	USD
Schedule Interview	00:00:00:0...	365:00:00:00.000	0	USD
Conduct Interview	00:00:00:0...	365:00:00:00.000	0	USD
Document Interview	00:00:00:0...	365:00:00:00.000	0	USD
Map Credit to Loan	00:00:00:0...	365:00:00:00.000	0	USD
Map Loan to Credit	00:00:00:0...	365:00:00:00.000	0	USD

___ 22. Change the processing time for each of the task under Review Loan.


The time format is in days:hours:minutes:seconds (dd:hh:mm:ss.sss) .

Contact Customer: 15 minutes 0 second

Schedule Interview: 15 minutes 0 second

Conduct Interview: 1 hour 0 minute 0 second

Document Interview: 1 hour 0 minute 0 second

Name	Processing time
Credit Check Service	00:00:00:01.000
 Review Loan	00:00:00:01.000
Contact Customer	00:00:15:00.000
Schedule Interview	00:00:15:00.000
Conduct Interview	00:01:00:00.000
Document Interview	00:01:00:00.000
Map Credit to Loan	00:00:00:01.000

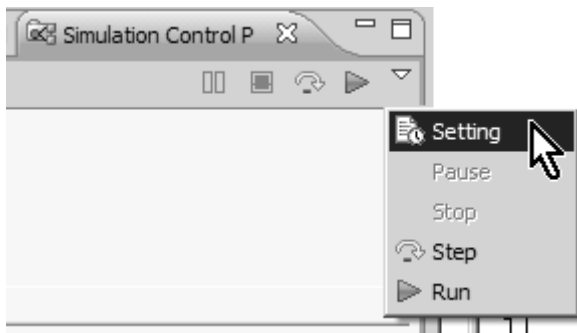
Note: You may also right-click to copy and paste from one cell to another cell.

___ 23. Save your work (Ctrl+S).

Part 3: Running the simulation and generating analysis

___ 1. Click the **Simulation Control Panel** tab.

- ___ 2. Click the **Menu** button in the upper right corner, and select **Setting**.



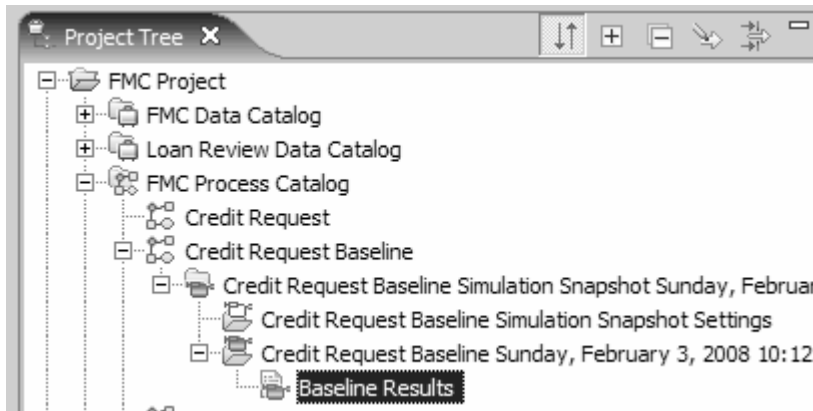
- ___ 3. Clear the box next to **Display animation during simulation**, and click **OK**.

- ___ 4. Click **Run** from the simulation control panel.

It will take a few seconds for the simulation to be completed.

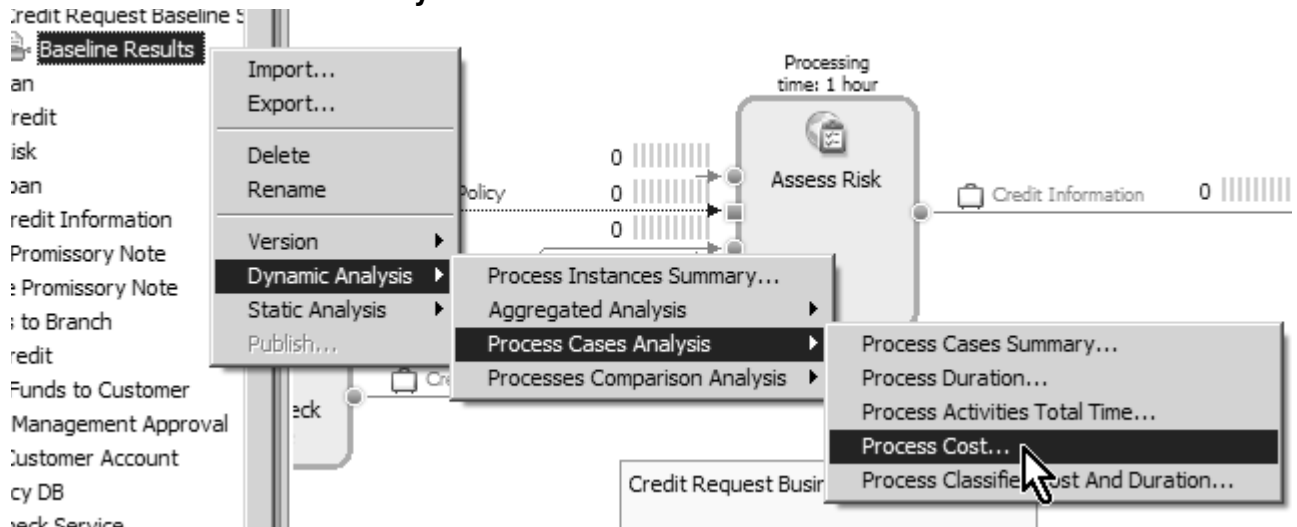
Once the simulation is completed, you will see the simulation results.

- ___ 5. From the Project Tree, right-click the simulation result that was just created, and select **Rename**. Enter **Baseline Results** as the new name.

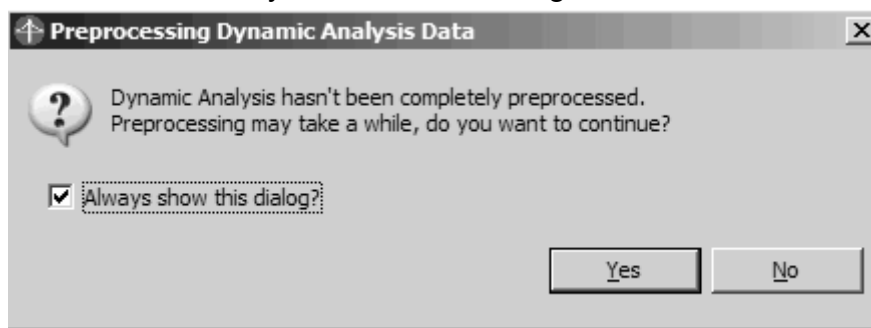


Now, based on the simulation results, you will generate the dynamic analysis.

- ___ 6. Right-click **Baseline Results** from the Project Tree and select **Dynamic Analysis > Process Cases Analysis > Process Cost**.



- ___ 7. Select **All process instances** and click **Finish**.
- ___ 8. Click **Yes** if you see the following window.



- ___ 9. The **Process Cost** analysis view appears:

Process Cost Baseline Results Credit Request Baseline Saturday, January 24, 2009 2:14:08 PM 2:38:40 PM						
Case Name	Distribution	Success Status	Average Revenue	Average Run Cost	Average Delay Cost	Average
Case 1	60.00%	Succeeded	USD250.00	USD125.00	USD0.00	
Case 2	10.00%	Succeeded	USD250.00	USD50.00	USD0.00	
Case 3	30.00%	Succeeded	USD250.00	USD125.00	USD0.00	
All Cases			USD250.00	USD117.50	USD0.00	

- ___ 10. Based on the dynamic analysis that you have just completed, answer the following:
The average cost (last second column of the right) for all cases is \$_____.
- ___ 11. Right-click the **Dynamic Analysis** tab and select **Close**.
- ___ 12. Right-click **Baseline Results**, and select **Dynamic Analysis > Aggregated Analysis > Activity Cost**.

The **Activity Cost** analysis view appears:

Activity Cost Baseline Results Credit Request Baseline Saturday, January 24, 2009 2:14:08 PM 2:41:29 PM				
Activity Name	Average Revenue	Average Run Cost	Average Delay Cost	Average Resource Cost
Accept Credit	USD0.00	USD75.00	USD0.00	USD8.12
Assess Risk	USD0.00	USD50.00	USD0.00	USD5.38
Collect Credit Information	USD250.00	USD0.00	USD0.00	USD4.03
Conduct Interview	USD0.00	USD0.00	USD0.00	USD30.00
Contact Customer	USD0.00	USD0.00	USD0.00	USD3.75
Credit Check Service	USD0.00	USD0.00	USD0.00	USD0.00
Credit Request Baseline	USD250.00	USD117.50	USD0.00	USD54.61
Accept Credit?	USD0.00	USD0.00	USD0.00	USD0.00
Approve Credit?	USD0.00	USD0.00	USD0.00	USD0.00
Map Credit to Loan	USD0.00	USD0.00	USD0.00	USD0.00
Map Loan to Credit	USD0.00	USD0.00	USD0.00	USD0.00
Merge	USD0.00	USD0.00	USD0.00	USD0.00
Document Interview	USD0.00	USD0.00	USD0.00	USD30.00
Reject Credit	USD0.00	USD0.00	USD0.00	USD1.34
Request Management App...	USD0.00	USD0.00	USD0.00	USD26.88
Review Loan	USD0.00	USD0.00	USD0.00	USD67.50

- ___ 13. Based on the dynamic analysis that you have just completed,
List the top three most expensive activities (tasks or subprocesses) as follows:
- a.) Activity _____ Cost \$ _____
- b.) Activity _____ Cost \$ _____
- c.) Activity _____ Cost \$ _____
- ___ 14. Right-click the **Dynamic Analysis** tab and select **Close**.
- ___ 15. Right-click **Baseline Results** from the Project Tree and select **Dynamic Analysis > Process Cases Analysis > Process Duration**.
- ___ 16. Select **All process instances**.
- ___ 17. Click **Finish**.
- ___ 18. Click **Yes** if the **Path Signatures** dialog box appears.

The **Process Duration** analysis view appears.

Process Duration Baseline Results Credit Request Baseline Saturday, January 24, 2009 2:14:				
Case Name	Distribution	Success Status	Average Elapsed Duration	Average Throughput
Case 1	60.00%	Succeeded	2 days 3 hours 56 minu...	0.02 work item / h...
Case 2	10.00%	Succeeded	2 days 10 hours 54 min...	0.02 work item / h...
Case 3	30.00%	Succeeded	4 days 4 hours	0.01 work item / h...
All Cases			2 days 19 hours 3 minu...	0.01 work item / h...

- ___ 19. Based on the dynamic analysis you have just completed, answer the following:
The average elapsed duration for all cases is _____.
- ___ 20. Right-click the **Dynamic Analysis** tab and select **Close**.

Now, you will focus on the activity duration and cost to find out which task takes the longest time and costs the most by generating the activity analysis.

- ___ 21. Right-click **Baseline Results** from the Project Tree and select **Dynamic Analysis > Aggregated Analysis > Activity Duration**.

The **Activity Duration** analysis view appears:

Activity Duration Baseline Results Credit Request Baseline Saturday, January 24, 2009 2:14:08 PM 2:50:21 PM			
Activity Name	Average Elapsed Duration	Average Delay Duration	Average Throughput
Accept Credit	14 hours 20 minutes	13 hours 20 minutes	0.07 work item / h...
Assess Risk	36 minutes	6 minutes	1.67 work item / h...
Collect Credit Information	1 day 13 hours 50 minu...	1 day 13 hours 20 mi...	0.03 work item / h...
Conduct Interview	7 hours 33 minutes 45 ...	6 hours 33 minutes 4...	0.13 work item / h...
Contact Customer	2 hours 11 minutes 15 ...	1 hour 56 minutes 15...	0.46 work item / h...
Credit Check Service	0 seconds	0 seconds	undefined
Credit Request Baseline	2 days 19 hours 3 minu...	2 days 15 hours 20 m...	0.01 work item / h...
Accept Credit?	0 seconds	0 seconds	undefined
Approve Credit?	0 seconds	0 seconds	undefined
Map Credit to Loan	0 seconds	0 seconds	undefined
Map Loan to Credit	0 seconds	0 seconds	undefined
Merge	0 seconds	0 seconds	undefined
Document Interview	18 hours 15 minutes	17 hours 15 minutes	0.05 work item / h...
Reject Credit	13 hours 10 minutes	13 hours	0.08 work item / h...
Request Management Approval	7 hours 37 minutes 30 ...	5 hours 37 minutes 3...	0.13 work item / h...
Review Loan	1 day 4 hours 22 minut...	1 day 1 hour 52 minu...	0.04 work item / h...
Schedule Interview	22 minutes 30 seconds	7 minutes 30 seconds	2.67 work items / ...

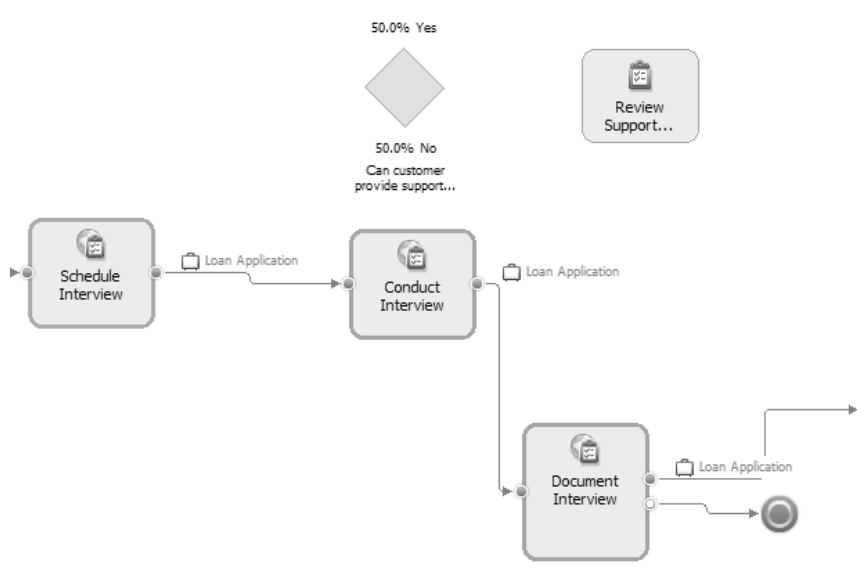
- ___ 22. Based on the dynamic analysis that you have just completed, list the top three (3) activities (tasks and subprocesses) which have the longest average elapsed duration as follows:
- a.) Activity _____ Duration _____.
- b.) Activity _____ Duration _____.
- c.) Activity _____ Duration _____.
- ___ 23. Right-click the **Dynamic Analysis** tab and select **Close**.
- ___ 24. Close the **Credit Request Baseline (Simulate)** window at top.

Part 4: Redesigning the Model

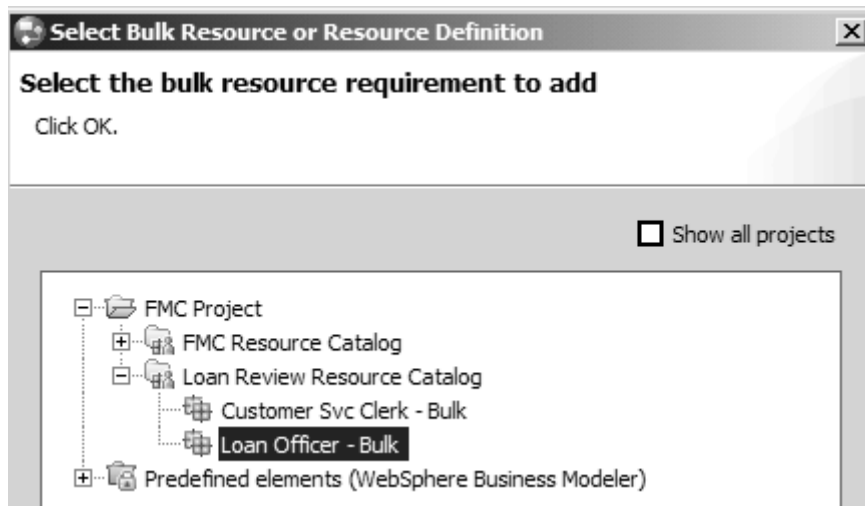
When reviewing the baseline results, there are many areas that you can focus to improve, such as resource allocation, resource availability, and so on. In this exercise, you will focus on redesigning the subprocess called **Review Loan**. To reduce the time and cost of the **Review Loan** subprocess, you will redesign the process by adding a decision to determine if the customer is able to provide the supporting documents like employment verification, income verification, tax forms, and so forth. If customer is able to provide them, it will omit the interview process and go through a new task called Review Support Doc task, which takes 15 minutes. This will greatly reduce the human resource cost and idle time to process the loan.

- ___ 1. Make a copy of the **Review Loan** process from the Project Tree:
- Under **Loan Review Process Catalog**, right-click **Review Loan**, and select **Copy**.
- ___ 2. Right-click **Loan Review process catalog**, and select **Paste**.

- ___ 3. Rename **Copy of Review Loan** to Review Loan To Be.
- ___ 4. Open **Review Loan To Be**.
- ___ 5. Add a new simple decision called Can customer provide supporting documents?
- ___ 6. Add a new local task called Review Support Documents next to the decision.



- ___ 7. Click the **Resources** tab, click the **Bulk resource requirements**.
- ___ 8. Click **Add** to add a new bulk requirement.
- ___ 9. Select **Loan Officer - Bulk**.



- ___ 10. Click **OK**.

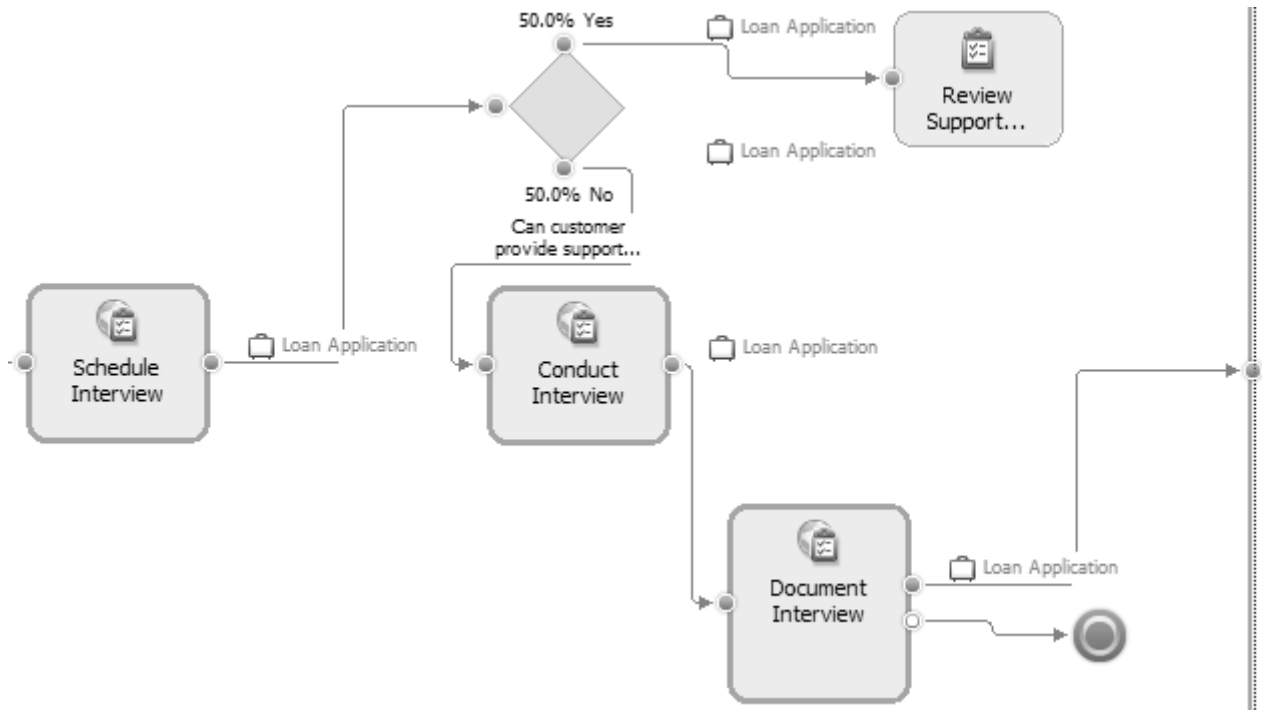
___ 11. The resource requirement is defined as follows:

▼ Bulk resource requirements

This section displays the list of bulk resource requirements.

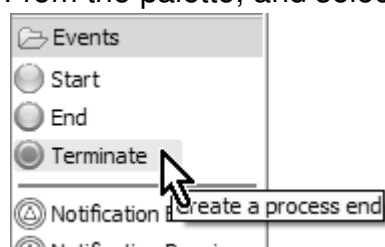
Name	Bulk resource	Time required	Quantity	Unit of measure
Bulk requirement: 1	Loan Officer - Bulk	15 minutes	1	units

___ 12. Connect the new elements as follows:



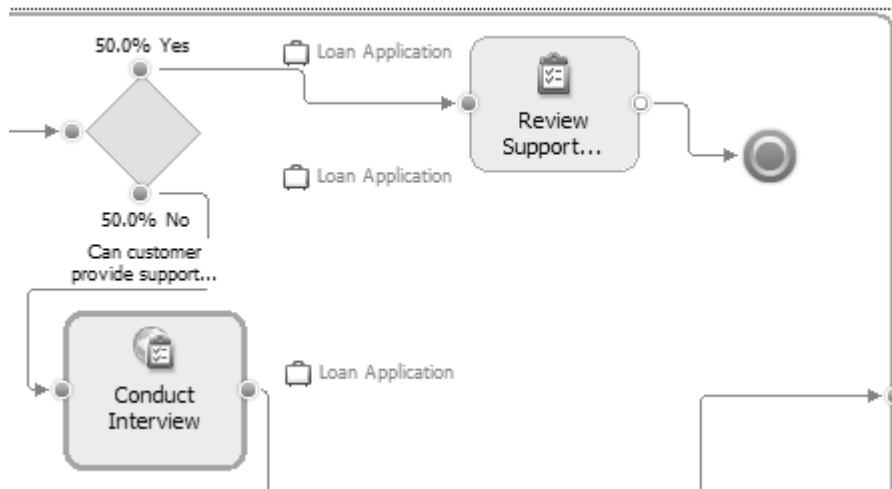
___ 13. Add a **Terminate** node.

___ a. From the palette, and select **Terminate** node.



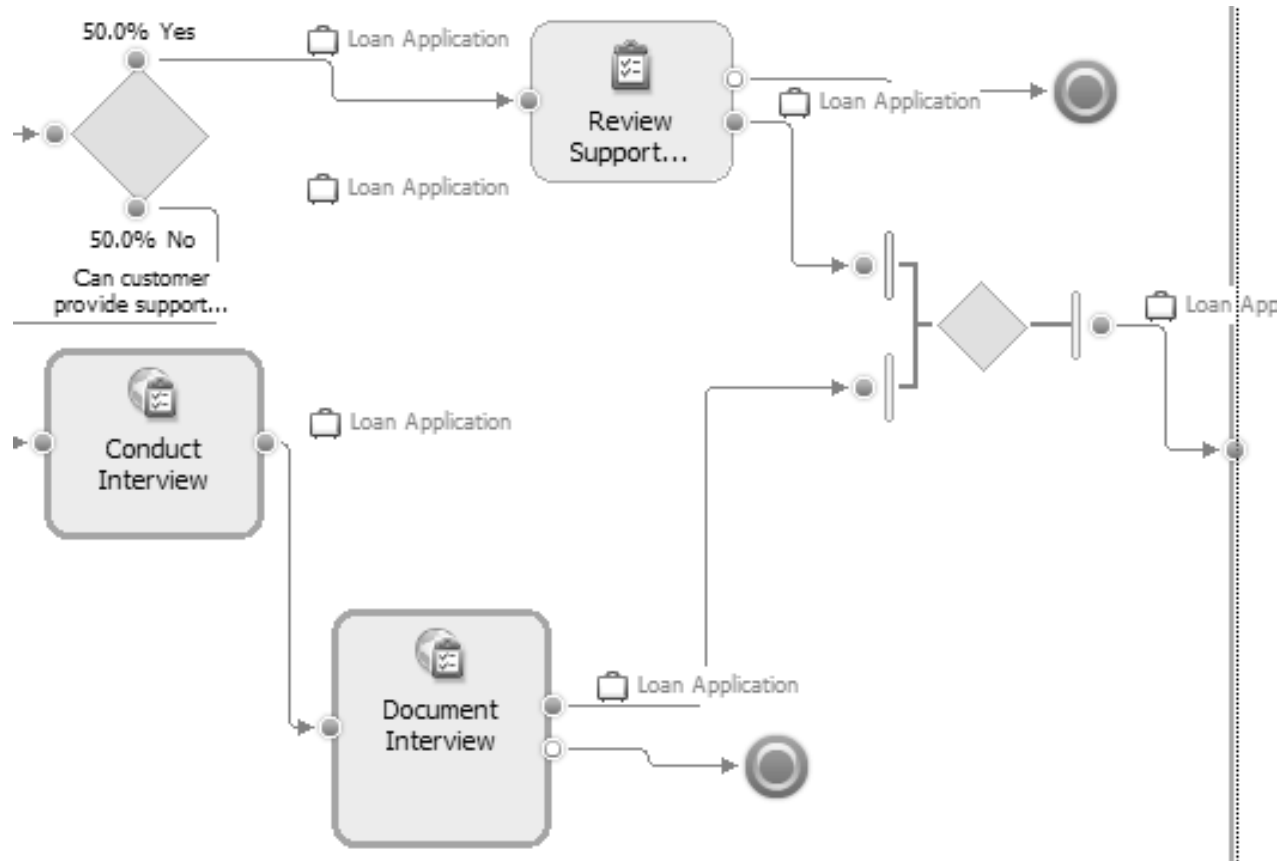
___ b. Switch to **Advance** modeling mode if you are not already in it by going to top of the screen and select **Modeling > Mode > Advance**.

___ c. Place the **Terminate** node next to the new task and connect them as follows:



___ 14. Add a **Merge** right below the **Terminate**.

___ 15. Connect the merge with the rest of tasks as follows:



___ 16. Save your work (Ctrl+S).

___ 17. Close the **Review Loan To Be** process editor.

Now you have completed and saved the changes for the **Review Loan To Be** subprocess. You will now update the **Credit Request Baseline** process with the **Review Loan To Be** subprocess.

- ___ 18. From the Project Tree, open the **Credit Request Baseline** process.
- ___ 19. Delete the **Review Loan** subprocess from the diagram.
- ___ 20. Replace it with **Review Loan To Be** subprocess by dragging it from the Project Tree to the diagram and reconnecting the objects as follows:



- ___ 21. Save your work (Ctrl+S).
- ___ 22. Close the **Credit Request Baseline** process editor.

Part 5: Setting up simulation settings for the redesigned model

Now that you have made changes to the model, you will run the simulation and generate analysis to determine if the changes have helped to achieve the goal. Before running the simulation, you will first define the settings.

- ___ 1. From the Project Tree, right-click **Credit Request Baseline** under **FMC Project > FMC Process Catalog** and select **Simulate**.
- ___ 2. During the simulation, resources and timetable should be included. Select **FMC Resource Catalog** from the **Optional elements** section.
- ___ 3. Click **Yes**.
- ___ 4. Click **OK**.

The **Credit Request Baseline (Simulate)** diagram opens on the right pane.

- ___ 5. Click the background of the **Credit Request Baseline (Simulate)** diagram and refer to the **Attributes** pane to view the attributes for the process.
- ___ 6. In the **General** tab of the **Attributes** pane, set **Random number seed** to 10.
- ___ 7. Select the **Inputs** tab.
- ___ 8. Click the input row under the **Token creation** settings.
- ___ 9. Scroll down to change the value for **Total number of tokens** (found below the table) to 10.
- ___ 10. Under **Time Trigger**, change the **Start time** to **Monday, January 5, 2009 at 8:00:00 AM** by clicking the **Edit** button.
- ___ 11. Click the **Resource Pool** tab.

- ___ 12. Under **Resource pool**, scroll up to **Role** and clear the check box next to **Role**.
- ___ 13. To define task durations inside the subprocess **Review Loan To Be**, locate and select it from the diagram.
- ___ 14. In the Attributes pane, click **Overview** tab, change the times of the tasks inside the subprocess as follows:

Review Loan To Be:



Contact Customer: 15 minutes 0 second

Schedule Interview: 15 minutes 0 second

Conduct Interview: 1 hour 0 minute 0 second

Document Interview: 1 hour 0 minute 0 second

Review Support Doc: 15 minutes 0 second

Name	Processing time
Map Credit to Loan	00:00:00:01.000
Map Loan to Credit	00:00:00:01.000
 Review Loan To Be	00:00:00:01.000
Contact Customer	00:00:15:00.000
Schedule Interview	00:00:15:00.000
Conduct Interview	00:01:00:00.000
Document Interview	00:01:00:00.000
 Can customer provid...	
Review Support Doc...	00:00:15:00.000

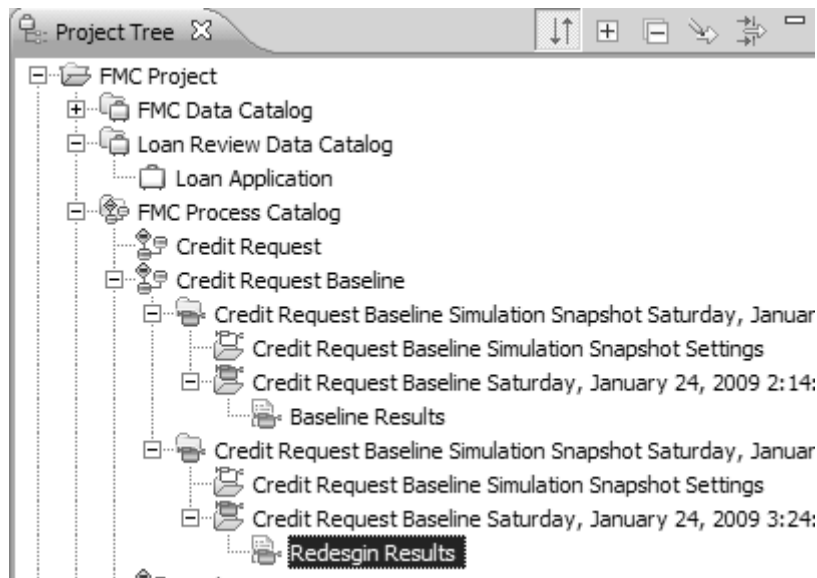
- ___ 15. Save your work (Ctrl+S).

Part 6: Running simulation and generating analysis for the redesigned model

- ___ 1. Click the **Control Panel** tab to display the **Simulation Control Panel** pane.
- ___ 2. Click **Run** from the **Simulation Control Panel**.

It will take a few seconds for the simulation to be completed.

- ___ 3. Once the simulation is completed, you will see the simulation results and generate the dynamic analysis. From the Project Tree, right-click the simulation result that was just created, and select **Rename**. Enter **Redesign Results** as the new name.



- ___ 4. Right-click the **Redesign Results**, and select **Dynamic Analysis > Process Cases Analysis > Process Duration**.
- ___ 5. Select **All process instances** and click **Finish**.
- ___ 6. Click **Yes**.

The **Process Duration** analysis view appears:

Case Name	Distribution	Success Status	Average Elapsed Duration	Average Throughput
Case 1	60.00%	Succeeded	2 days 3 hours 56 minu...	0.02 work item / h...
Case 2	10.00%	Succeeded	2 days 15 hours 54 min...	0.02 work item / h...
Case 3	20.00%	Succeeded	2 days 14 hours 16 min...	0.02 work item / h...
Case 4	10.00%	Succeeded	3 days 11 hours 38 min...	0.01 work item / h...
All Cases			2 days 10 hours 22 min...	0.02 work item / h...

- ___ 7. Based on the dynamic analysis that you have just completed:
The average elapsed duration for all cases is _____.
- ___ 8. Right-click the **Dynamic Analysis** tab and select **Close**.
- ___ 9. Right-click the **Redesign Results**, and select **Dynamic Analysis > Process Cases Analysis > Process Cost**.
- ___ 10. Select **All Process Instances**.
- ___ 11. Click **Finish**.

The **Process Cost** analysis view appears:

Process Cost Redesign Results Credit Request Baseline Saturday, January 24, 2009 3:24:29 PM 3:48:20 PM						
Case Name	Distribution	Success Status	Average Revenue	Average Run Cost	Average Delay Cost	Average Total Cost
Case 1	60.00%	Succeeded	USD250.00	USD125.00	USD0.00	USD375.00
Case 2	10.00%	Succeeded	USD250.00	USD50.00	USD0.00	USD300.00
Case 3	20.00%	Succeeded	USD250.00	USD125.00	USD0.00	USD375.00
Case 4	10.00%	Succeeded	USD250.00	USD125.00	USD0.00	USD375.00

___ 12. Based on the dynamic analysis that you have just completed:

The average process cost for all cases is \$_____.

___ 13. Right-click the **Dynamic Analysis** tab and select **Close**.

Now, you will focus on the activity duration and cost to find out which task takes the longest time and costs the most by generating the Activity analysis.

___ 14. Right-click the **Redesign Results**, and select **Dynamic Analysis > Aggregated Analysis > Activity Duration**.

The **Activity Duration** analysis view appears:

Activity Duration Redesign Results Credit Request Baseline Saturday, January 24, 2009 3:24:29 PM 3:51:11 PM			
Activity Name	Average Elapsed Duration	Average Delay Duration	Average Throughput
Accept Credit	14 hours 42 minutes 46...	13 hours 42 minutes ...	0.07 work item / h...
Assess Risk	36 minutes	6 minutes	1.67 work item / h...
Collect Credit Information	1 day 13 hours 50 minu...	1 day 13 hours 20 mi...	0.03 work item / h...
Conduct Interview	1 hour 22 minutes 30 s...	22 minutes 30 seconds	0.73 work item / h...
Contact Customer	2 hours 11 minutes 15 ...	1 hour 56 minutes 15...	0.46 work item / h...
Credit Check Service	0 seconds	0 seconds	undefined
Credit Request Baseline	2 days 10 hours 22 min...	2 days 7 hours 30 se...	0.02 work item / h...
Accept Credit?	0 seconds	0 seconds	undefined
Approve Credit?	0 seconds	0 seconds	undefined
Map Credit to Loan	0 seconds	0 seconds	undefined
Map Loan to Credit	0 seconds	0 seconds	undefined
Merge	0 seconds	0 seconds	undefined
Document Interview	1 hour 7 minutes 30 se...	7 minutes 30 seconds	0.89 work item / h...
Reject Credit	18 hours 55 minutes	18 hours 45 minutes	0.05 work item / h...
Request Management Approval	7 hours 37 minutes 30 ...	5 hours 37 minutes 3...	0.13 work item / h...
Review Loan To Be	4 hours 22 minutes 30 ...	2 hours 45 minutes	0.23 work item / h...
Can customer provide supporting...	0 seconds	0 seconds	undefined
Merge	0 seconds	0 seconds	undefined
Review Support Document	1 hour 7 minutes 30 se...	52 minutes 30 seconds	0.89 work item / h...
Schedule Interview	22 minutes 30 seconds	7 minutes 30 seconds	2.67 work items / ...

___ 15. Based on the dynamic analysis that you have just completed:

List the top three (3) activities (tasks or subprocesses) which have longest average elapsed duration as follows:

a.) Activity _____ Duration _____

b.) Activity _____ Duration _____

c.) Activity _____ Duration _____

___ 16. Right-click the **Dynamic Analysis** tab and select **Close**.

- ___ 17. Right-click the **Redesign Results**, and select **Dynamic Analysis > Aggregated Analysis > Activity Cost**.

The **Activity Cost** analysis view appears:

Activity Cost Redesign Results Credit Request Baseline Saturday, January 24, 2009 3:24:29 PM 3:55:12 PM					
Activity Name	Average Revenue	Average Run Cost	Average Delay Cost	Average Resource Cost	Average Cost
Accept Credit	USD0.00	USD75.00	USD0.00	USD8.06	USD83.06
Assess Risk	USD0.00	USD50.00	USD0.00	USD5.38	USD55.38
Collect Credit Information	USD250.00	USD0.00	USD0.00	USD4.03	USD4.03
Conduct Interview	USD0.00	USD0.00	USD0.00	USD30.00	USD30.00
Contact Customer	USD0.00	USD0.00	USD0.00	USD3.75	USD3.75
Credit Check Service	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Credit Request Baseline	USD250.00	USD117.50	USD0.00	USD44.05	USD161.55
Accept Credit?	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Approve Credit?	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Map Credit to Loan	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Map Loan to Credit	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Merge	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Document Interview	USD0.00	USD0.00	USD0.00	USD30.00	USD30.00
Reject Credit	USD0.00	USD0.00	USD0.00	USD1.34	USD1.34
Request Management Approval	USD0.00	USD0.00	USD0.00	USD26.88	USD26.88
Review Loan To Be	USD0.00	USD0.00	USD0.00	USD41.25	USD41.25
Can customer provide suppor...	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Merge	USD0.00	USD0.00	USD0.00	USD0.00	USD0.00
Review Support Document	USD0.00	USD0.00	USD0.00	USD7.50	USD7.50
Schedule Interview	USD0.00	USD0.00	USD0.00	USD3.75	USD3.75

Based on the dynamic analysis that you have just completed, List the top three most expensive activities (tasks or subprocesses) as follows:

- a.) Activity _____ Cost \$ _____
- b.) Activity _____ Cost \$ _____
- c.) Activity _____ Cost \$ _____

- ___ 18. Right-click the **Dynamic Analysis** tab and select **Close**.

Part 7: Comparing simulation results

Now you have generated the simulation results of both models. You can compare the redesign results with the Baseline results.

- ___ 1. Right-click the **Baseline Results**, and select **Dynamic Analysis > Processes Comparison Analysis > Processes Activities Total Time Comparison**.
- ___ 2. Select **Redesign Results** and click **OK**.
- ___ 3. Select **All process instances** and click **Finish**.

The **Processes Activities Total Time Comparison Analysis** results display:

Processes Activities Total Time Comparison Baseline Results Credit Request Baseline Saturday, January 2			
	Simulation Result Name	Process Name	Average Elapsed Duration
	Baseline Results	Credit Request Baseline	2 days 19 hours 3 minu...
	Redesign Results	Credit Request Baseline	2 days 10 hours 22 min...
Difference			8 hours 41 minutes
Percentage Change			12.95%

The redesign model has reduced the average elapsed duration by _____%.

- ___ 1. Right-click the **Baseline Results**, and select **Dynamic Analysis > Processes Comparison Analysis > Processes Cost Comparison**.
- ___ 2. Select **Redesign Results** and click **OK**.
- ___ 3. Select **All process instances** and click **Finish**.

The **Processes Cost Comparison Analysis** results display:

Processes Cost Comparison Baseline Results Credit Request Baseline Saturday, January 24, 2009 2:14:08 PM 4:01:41 PM								
	Simulation Result Name	Proces...	Ave...	Ave...	Averag...	Average Resource Cost	Average Cost	Average Profit
	Baseline Results	Credit ...	USD...	USD...	USD0.00	USD54.61	USD172.11	USD77.89
	Redesgin Results	Credit ...	USD...	USD...	USD0.00	USD44.05	USD161.55	USD88.45
Difference			USD...	USD...	USD0.00	USD10.55	USD10.55	(USD10.55)
Percentage Change			0.00%	0.00%	undefined	19.33%	6.13%	-13.55%

The redesign model has reduced the average cost by ____%.

The redesign model has increased the average profit by ____%.

- ___ 4. Right-click the **Dynamic Analysis** tab and select **Close**.
- ___ 5. Save changes (Ctrl+S).

Part 8: Using the Modeler help

Use the search function in Help to locate the following topics and answer the questions.

- ___ 1. What type of comparative analysis are available in Modeler?

- ___ 2. Exit WebSphere Business Modeler.
- ___ 3. Review the flashcards for this unit.

End of exercise

Exercise 6. Creating a custom report

What this exercise is about

This exercise covers creating a custom report.

What you should be able to do

At the end of the exercise, you should be able to:

- Create a custom report
- Create a report style master
- Create a report template
- Add report details
- Add a report chart
- Add a header and footer to the report

Exercise instructions

Reports provide a way for you to view, share, and print information derived from the models you have created.

The tool provides a variety of predefined report templates that you can use to generate reports based on your models. In addition, you can design your own report templates, and you can copy the predefined report templates to a different report catalog and then customize them.

Part 1: Opening workspace

- ___ 1. Launch WebSphere Business Modeler and use the following workspace:
C:\workspaces\Lab19_workspace

Part 2: Creating a report style master

A report style master enables you to reuse header and footer information for multiple report templates. Rather than adding header and footer information to every report template that you create, you can add your required fields just once to a single report style master. You can then apply that report style master to as many report templates as you want. For every report template, the same set of header and footer information will appear.

For example, if you want your company name, company logo, and page numbers to appear in all your report templates, you could add those fields to an All Reports style master and then apply that style master to all of your report templates.

Report style masters can be applied to predefined or user-defined report templates.

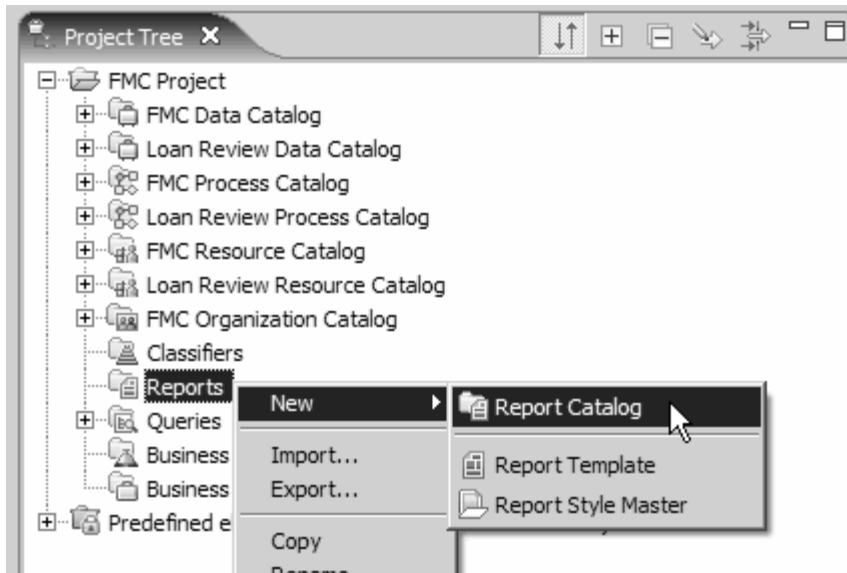
First, you will create a report catalog which is a container that holds report templates.

Report catalogs appear in the Project Tree view. A report catalog performs the function of a folder, allowing you to group a related set of report templates that you create to document your business information. For example, the Predefined elements project contains a report catalog, Reports, which contains a number of predefined report templates.

You can nest report catalogs inside one another. This enables you to create a multilevel structure to contain your reports.

You can use a report template to create detailed reports for your processes containing data that you have specified. Using the Report Designer, you can create report templates that have the exact content and presentation that you need.

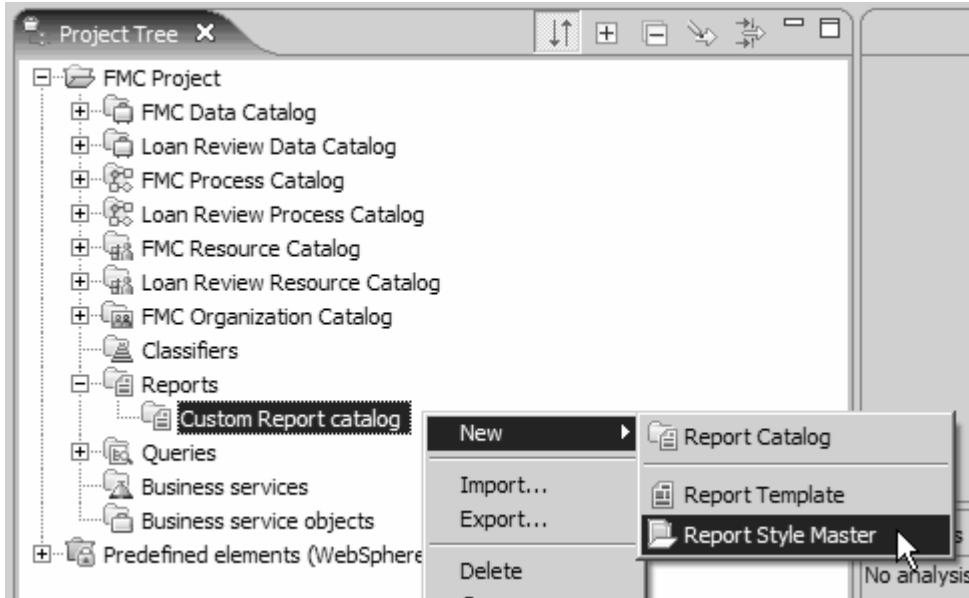
- ___ 1. From the Project Tree, select **FMC Project > Reports**, right-click, and select **New > Report Catalog**.



- ___ 2. Enter Custom Report Catalog as the **Name of new report catalog**.
 ___ 3. Click **Finish**.

The Custom Report Catalog is created.

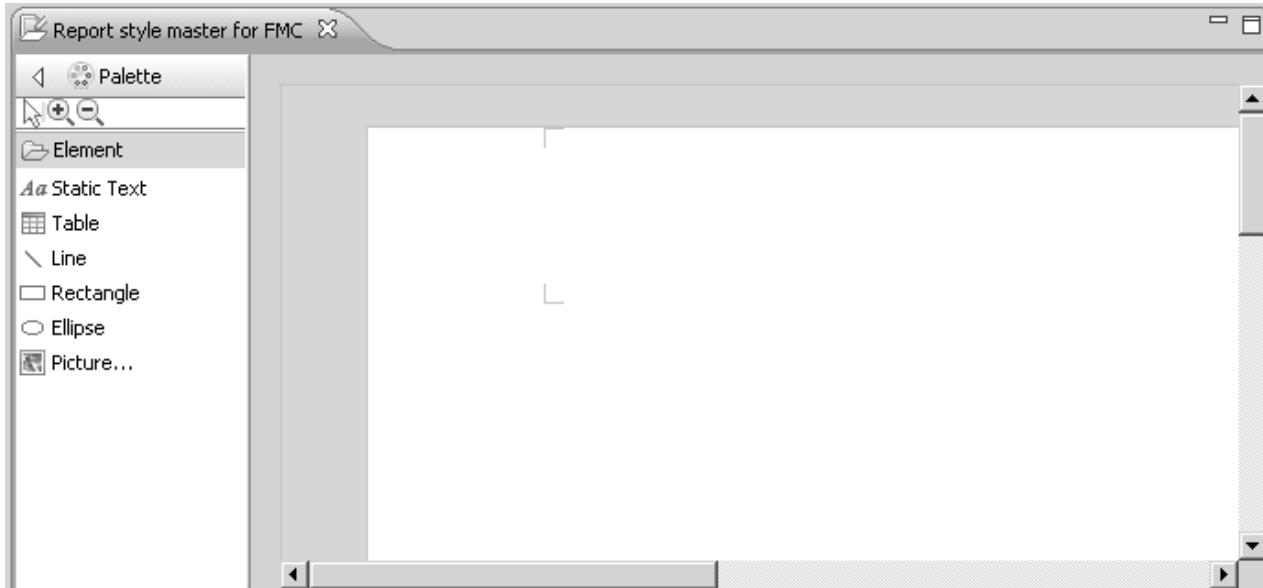
- ___ 4. Go to **FMC Project > Reports > Custom Report Catalog**, right-click, and select **New > Report Style Master**.



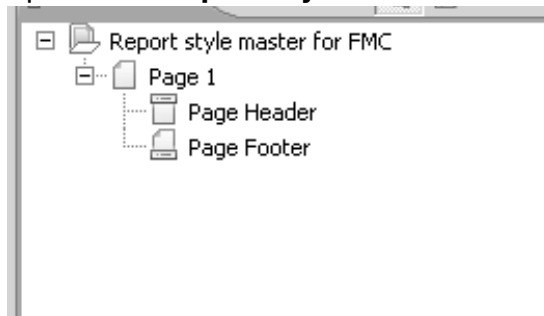
A report style master enables you to reuse header and footer information for multiple report templates. Rather than adding header and footer information to every report template that you create, you can add your required fields just once to a single report style master. You can then apply that report style master to as many report templates as you want. For every report template, the same set of header and footer information will appear.

- ___ 5. Enter **Report style master for FMC** as the **Name of new report style master**.
- ___ 6. Click **Finish**.

A new report style master is created.

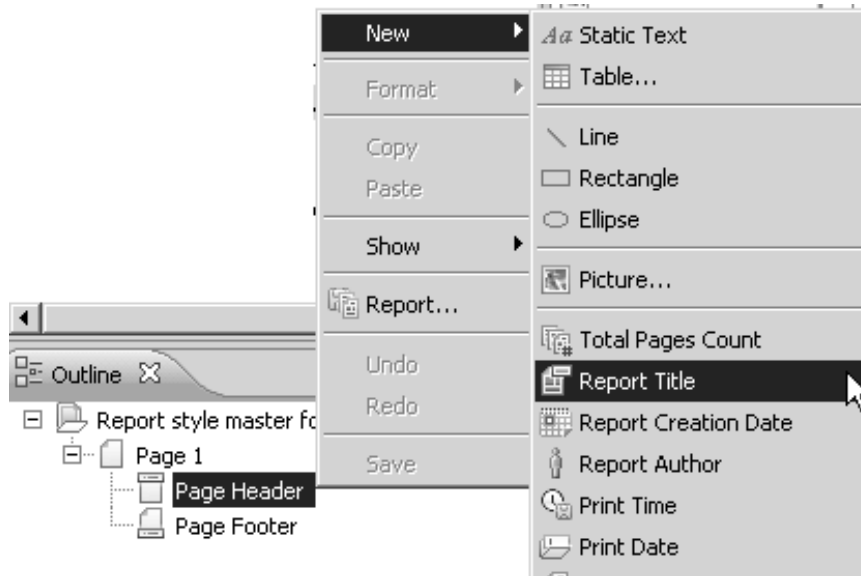


- ___ 7. From the Outline, expand the **Report style master for FMC**.

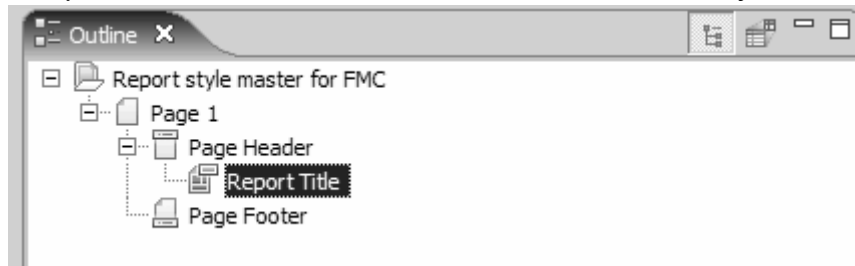


- ___ 8. To define the page header, select **Page Header**.

___ 9. Right-click to select **New > Report Title**.



A report title has been added to the header of the style master.

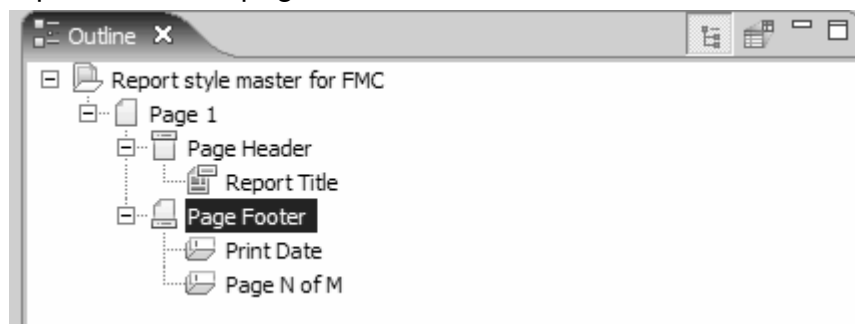


___ 10. To define the page footer, select **Page Footer**.

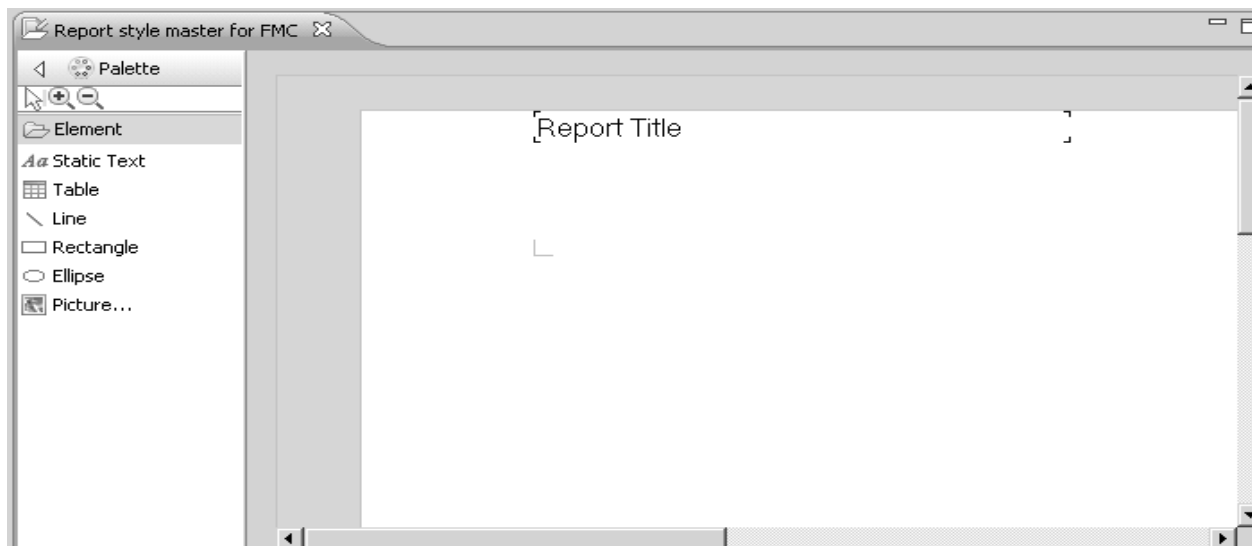
___ 11. Right-click **Page Footer** to select **New > Print Date**.

___ 12. Right-click **Page Footer** to select **New > Page N of M**.

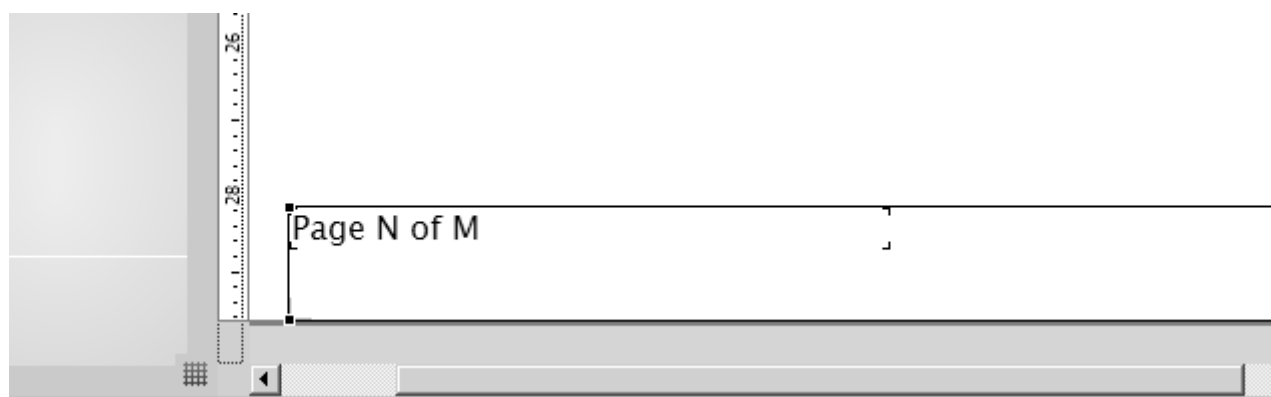
A print date and page number have been added to the header of the style master.



Scroll up to the Report editor until you can see the new objects being added to the header of style master on the editor.

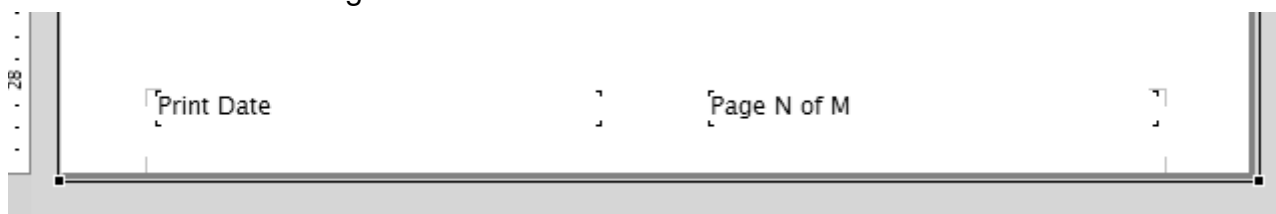


Scroll down until you can also see the new objects being added to footer of the style master on the editor.

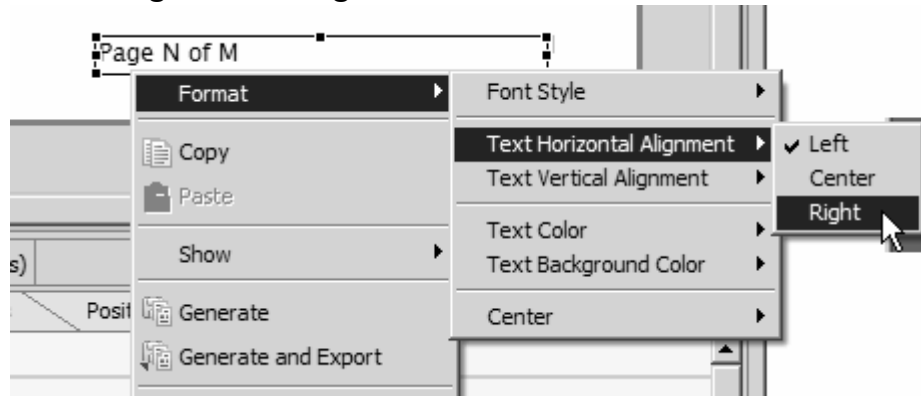


As you added the print date and page number to the style master, both of them are stacking on each other.

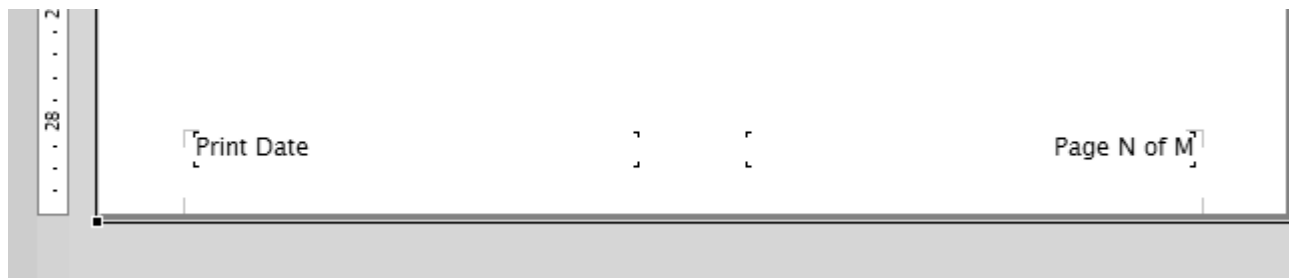
- ___ 13. Use the mouse to drag the **Page N of M** to the right side of the editor. You can also see the new objects being added to the style master on the editor.
- ___ 14. Now you can see the **Print Date** on the far left of the page footer, and the **Page number** on the right.



- ___ 15. Select the **Page N of M** from the editor, and right-click to select **Format > Text Horizontal Alignment > Right**.



The alignment is completed.



- ___ 16. Press Ctrl+S to save.
- ___ 17. Close the style master editor.

Part 3: Creating a report template

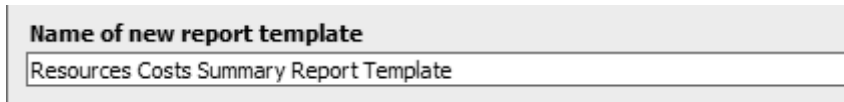
You can use a report template to create detailed reports for your processes containing data that you have specified. Using the Report Designer, you can create report templates that have the exact content and presentation that you need.

Report templates can be constructed to represent a framework of formatted model data references that will generate different reports, depending on the model data being referenced. Depending on the fields that you include, a report template can be run against different process models to generate results specific to each model.

A report template is also an efficient way to create multiple reports that contain the specific information that you want to display. For example, if every report that you create requires your company name, address, and the date that the report was generated, you want to be able to include that information on each report automatically, rather than adding it to each individual report that you generate. A report template enables you to define your required information once, and then generate it as many times as you want.

Templates are especially important when you are ready to generate more complex business reports. A carefully constructed template can be run for any number of processes within your model. Although it can take some time to create and polish a template's design, the effort invested in building a template will give you the flexibility to generate any number of reports, either from the original template or by making a copy or copies and adding more specific details.

- ___ 1. From the **FMC Project > Reports > Custom Report Catalog**, right-click and select **New > Report Template**.
- ___ 2. Enter **Resources Costs Summary Report Template** as the **Name of new report template**.

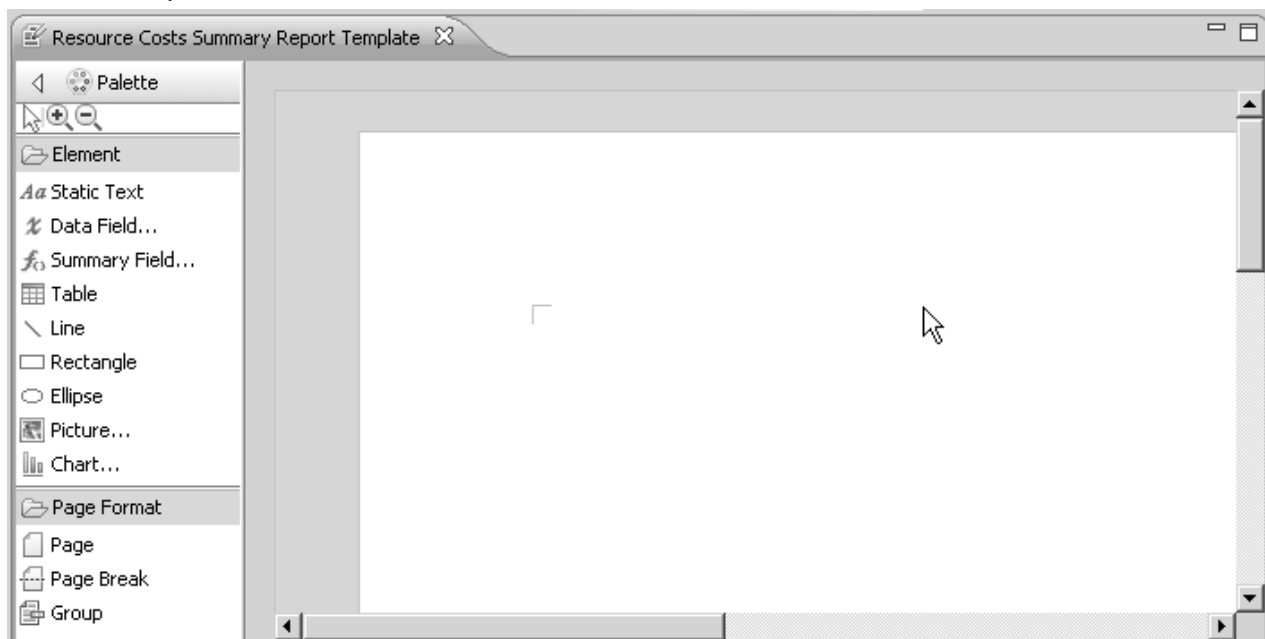


Name of new report template

Resources Costs Summary Report Template

- ___ 3. Click **Next**.
- ___ 4. From the data source, expand **Static Analysis** and select **Resources Costs Summary Analysis**.
- ___ 5. Select **WebSphere Modeler** for report designer.
- ___ 6. Click **Next**.
- ___ 7. Expand **FMC Project>Reports>Custom Report Catalog** and select **Report style master for FMC** for report style master.
- ___ 8. Click **Finish**.

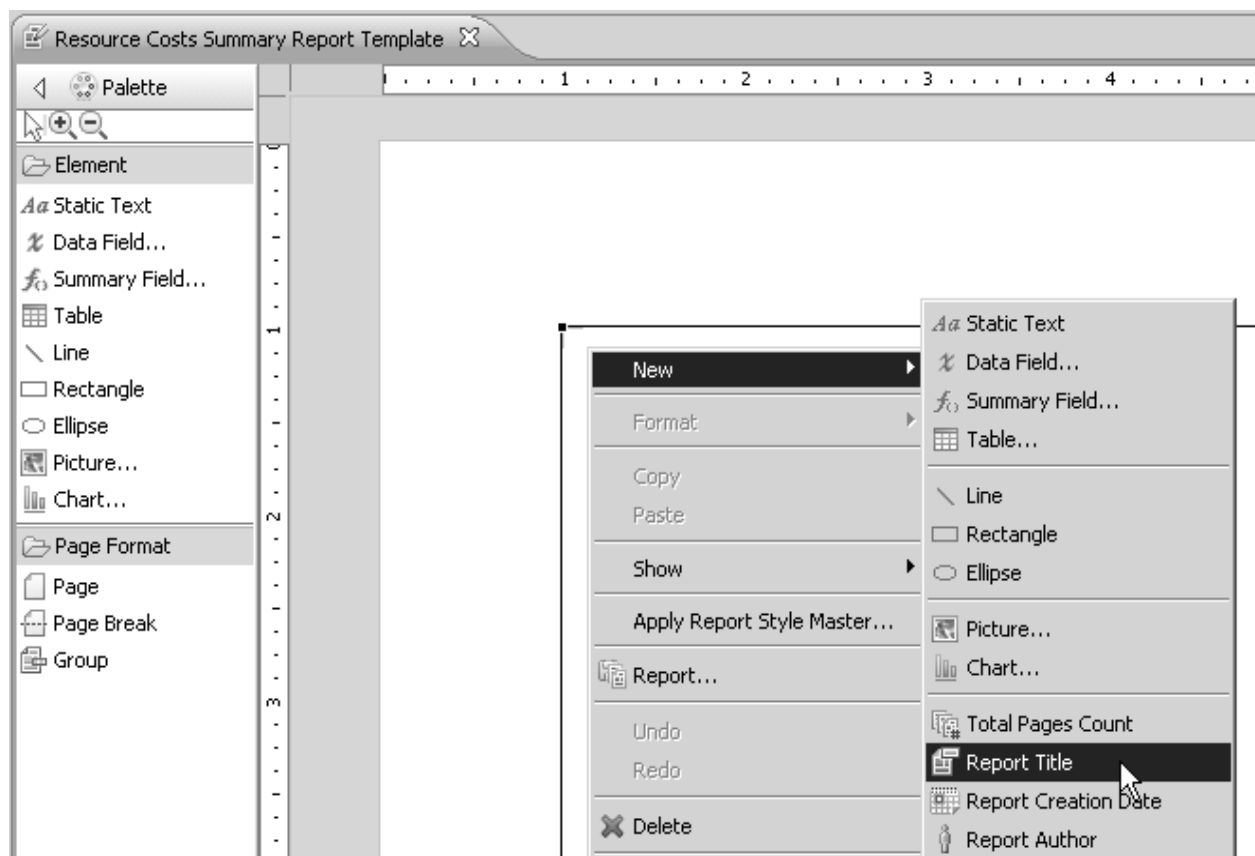
A blank template is created.



**Note**

You may switch to 1-pane layout to work with the report editor.

9. In the report editor, right-click within the margins and select **New > Report Title**.



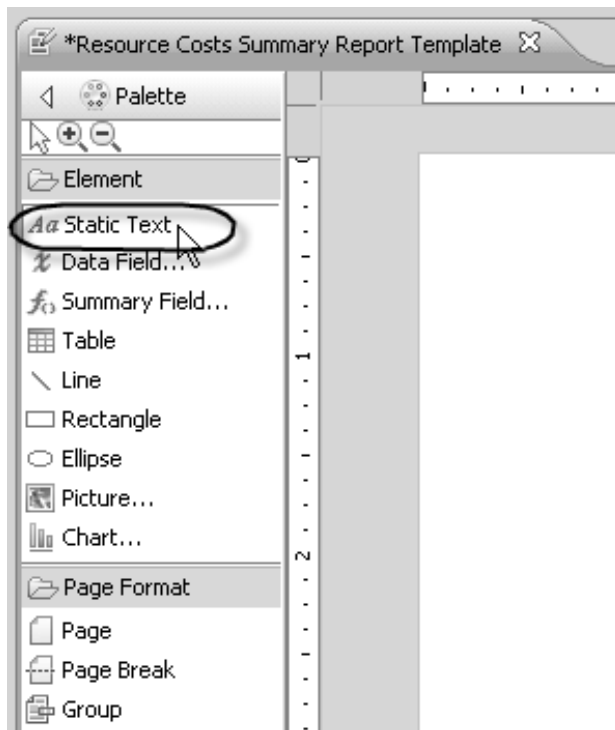
- ___ 10. Repeat the previous step to add **Report Creation Date** and **Report Author** to the report.

[Report Title]

[Report Creation Date]

[Report Author]

- ___ 11. From the palette, click the **Create a new static text** button and drop onto the report page.



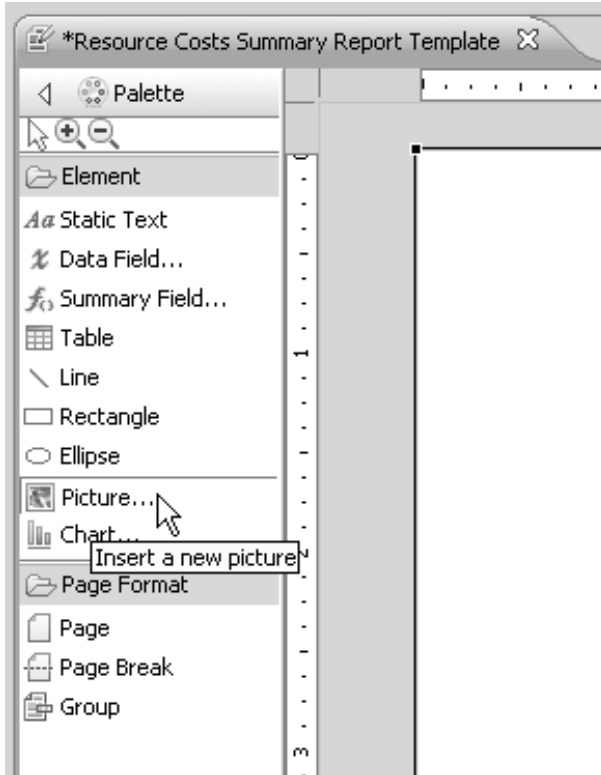
___ 12. Double-click the new text field and type **Created by**.

[Report Title]
[Report Creation Date]
[Report Author]
[Created by]

___ 13. Move the **Created by** text field above the **Report Author** text field.

[Report Title]
[Report Creation Date]
[Created by]
[Report Author]

- ___ 14. Insert an company logo by clicking the **Insert a new picture** button from the palette and place between the **Report Creation Date** and **Created by** text boxes.



An **Open** window is displayed.

- ___ 15. Navigate to the **My Documents > My Pictures** directory.

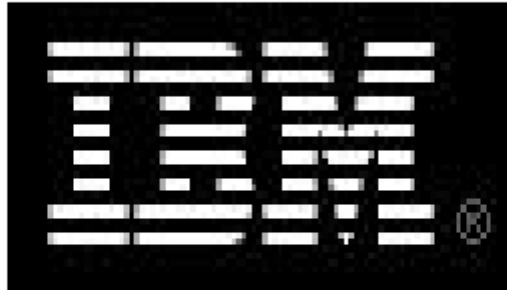
If you are using Windows 2000, select **sample.jpg**.

If no .jpg files are present, use any image available.

- ___ 16. Click **Open**.

___ 17. Rearrange the objects as follows:

[Report Title]



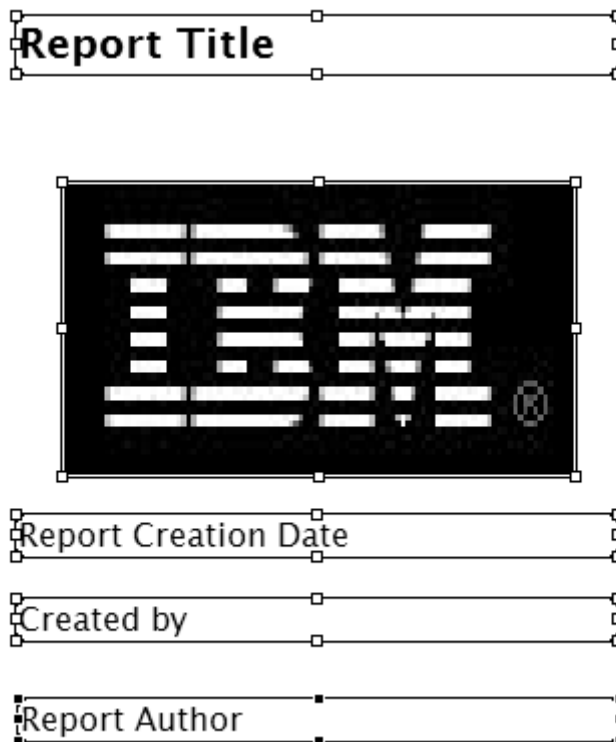
[Report Creation Date]

[Created by]

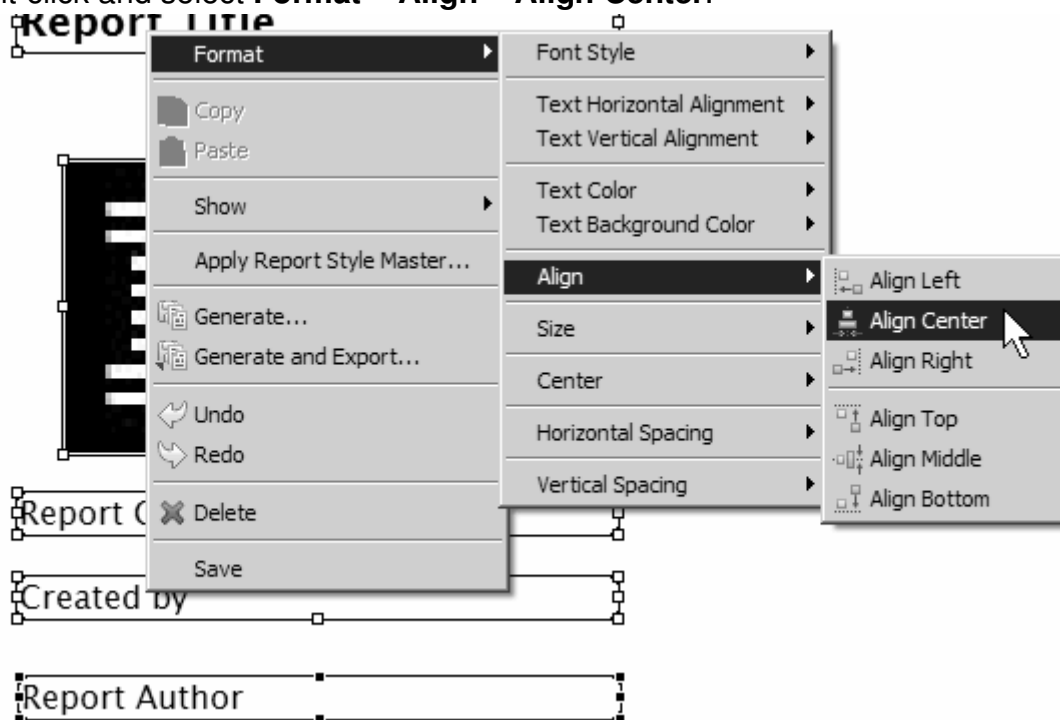
[Report Author]

Tip: To maintain the original alignment of elements being moved, hold Shift while dragging the elements.

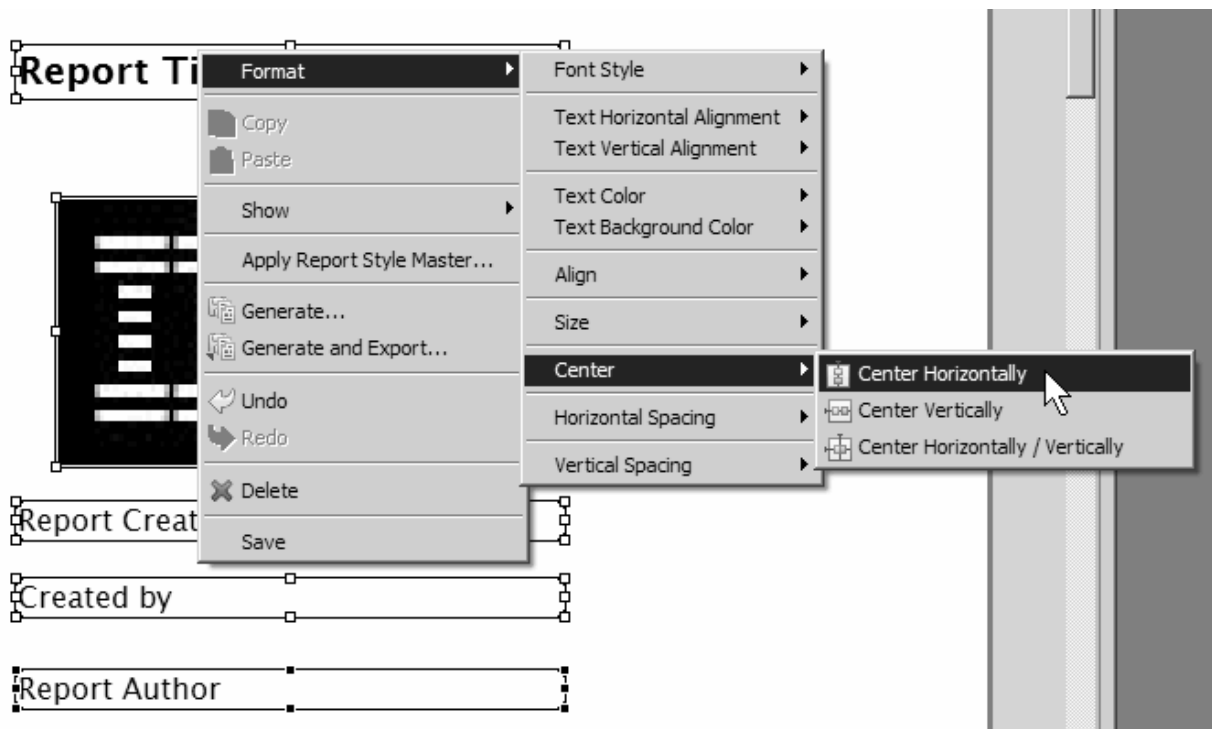
- ___ 18. To format alignment, while holding Shift key, select every object until all of the objects are highlighted.



- ___ 19. Right-click and select **Format > Align > Align Center**.

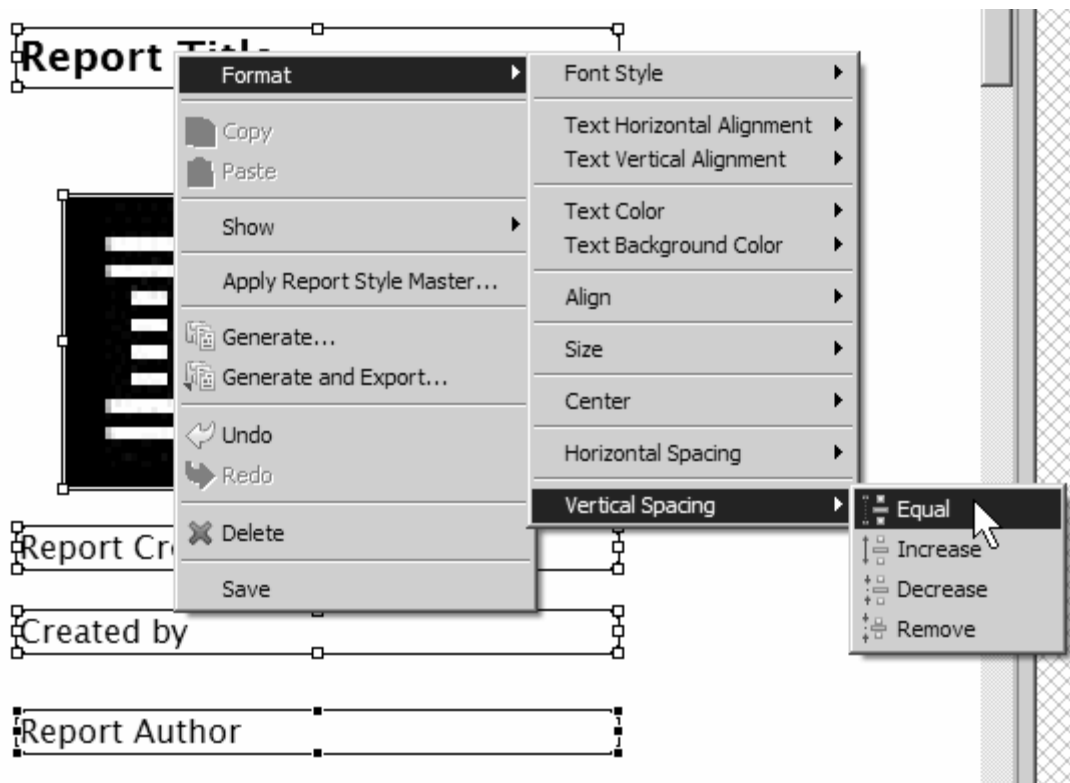


___ 20. Right-click again and select **Format > Center > Center Horizontally**.



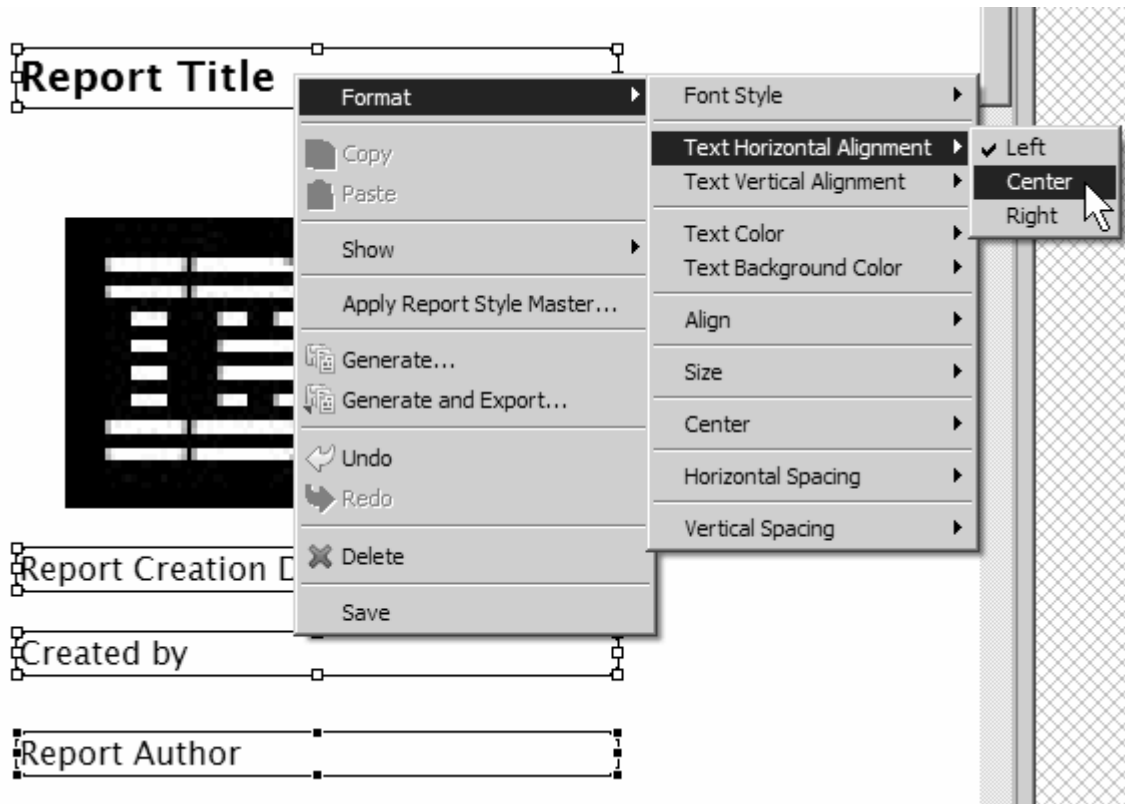
The fields are now centered horizontally on the page.

___ 21. Right-click again and select **Format > Vertical Spacing > Equal**.



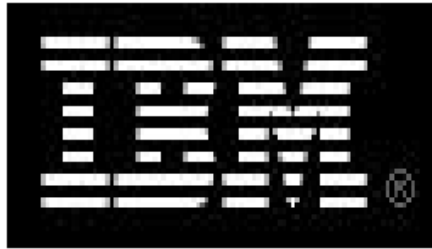
The fields are now spaced equally.

- ___ 22. Click the background of the report template editor to clear the selection of all the objects.
- ___ 23. To format text alignment, while holding Shift key, select only the text fields. Do not select the picture. Right-click and select **Format > Text Horizontal Alignment > Center**.



All the text fields are centered.

Report Title



Report Creation Date

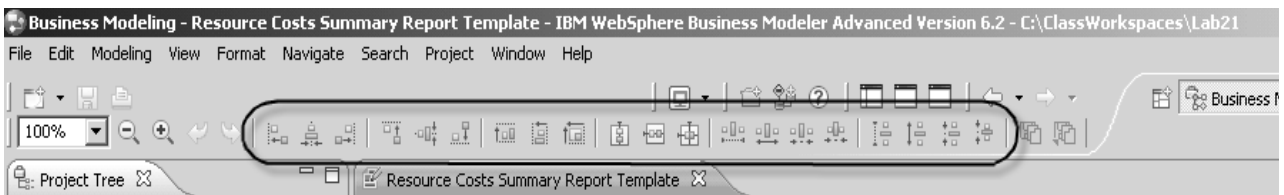
Created by

Report Author



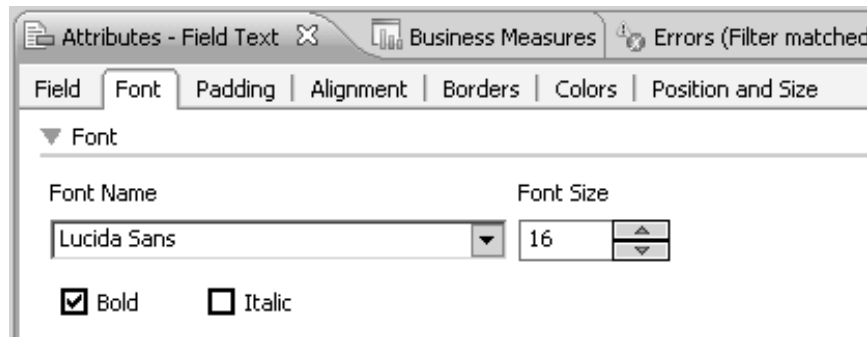
Note

Instead of right-clicking and using the context menu, you may use these buttons located on the toolbar to format the objects on the report editor.

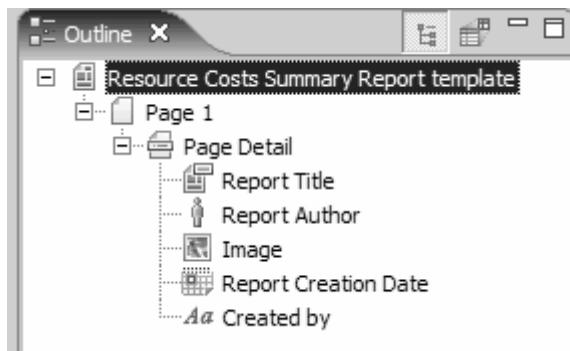


- ___ 24. Press Ctrl-S to save.
- ___ 25. Switch back to 4-pane layout.
- ___ 26. Double-click the **Report Title** field from the report template editor.

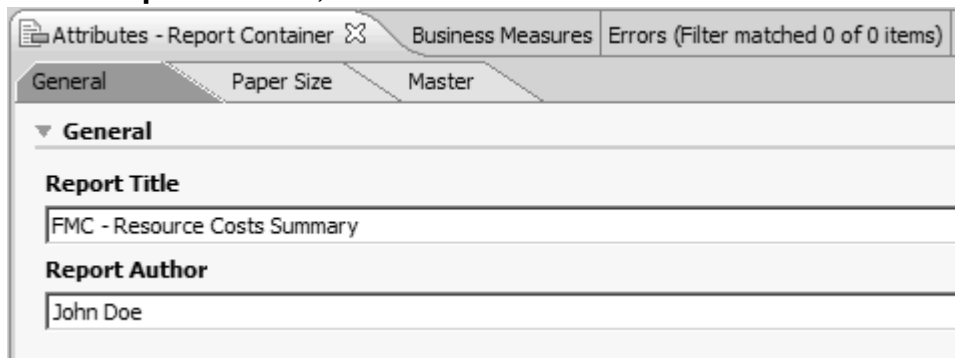
- ___ 27. In the **Attributes** pane, click to the **Font** tab, increase the **Font Size** to 16, and click the check box next to **Bold**.



- ___ 28. To update the value of the report title field, in the **Outline** view, click the **Structure** button and select **Resource Costs Summary Report template**.

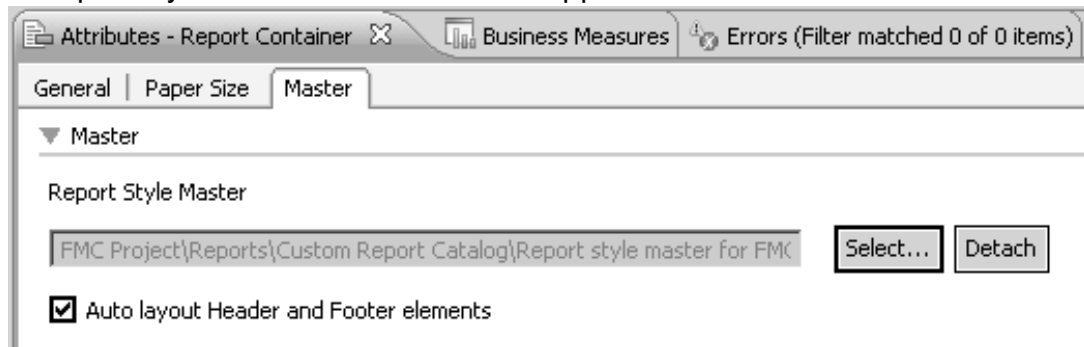


- ___ 29. In the **Attributes** pane, select the **General** tab; under **Report Title**, enter **FMC - Resource Costs Summary**.
- ___ 30. Under **Report Author**, enter **John Doe**.



- ___ 31. Select the **Master** tab and click **Select**.
- ___ 32. If asked to save, click **OK**.
- ___ 33. Verify that **Report Style Master for FMC** has been selected.
- ___ 34. Verify that the **Auto layout Header/Footer elements** check box has been selected.
- ___ 35. Click **OK**.

Now the Report style master for FMC will be applied.



___ 36. Save your work (Ctrl+S).

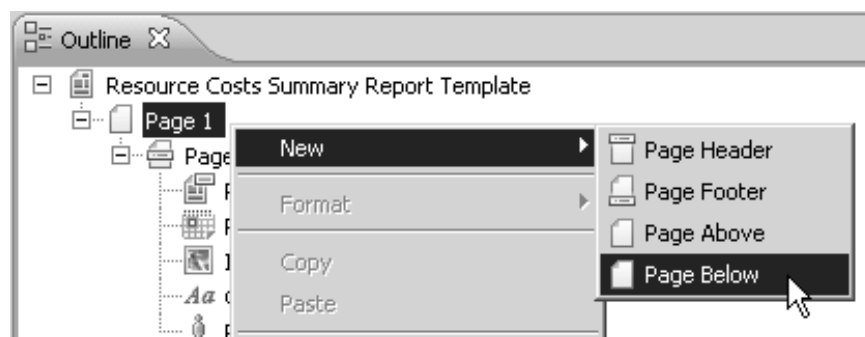
Part 4: Adding report details

Data sources are sets of information that you can derive from elements of your project. You can use data sources as the basis for defining report templates.

When you create a new report template using Report Designer, you can specify the source of data that the report will use. The key to choosing the right data source for your report template is in considering what information you want your reports to provide. For example, if you are creating reports only on the resources in your model, you might choose the Resource Specification Data Source. If you need to include fields that provide detailed information related to your process, you might choose the Process Specification data source.

Once you create a report template and specify its data source, you can work with the graphical editor and the fields view to select the specific fields to include in the report template from the list of all available fields in the data source.

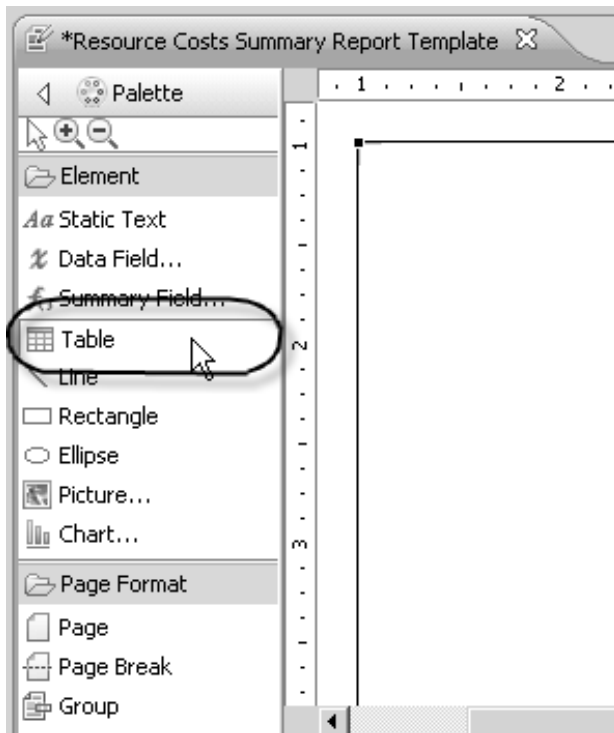
___ 1. To add a new page, in the **Outline** view, right-click **Resource Costs Summary Report template > Page 1** and select **New > Page Below**.



Page 2 is created.

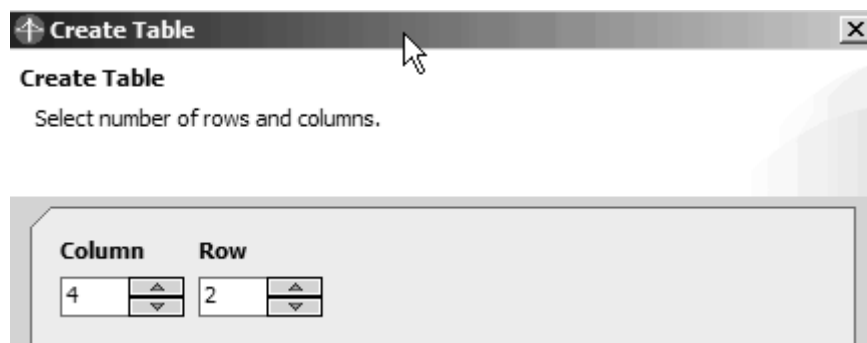
___ 2. Select **Page 2 > Page Detail** from the **Outline**.

- ___ 3. In the **report** editor, click the **Table** button from the palette and drop onto the top of the second page of the report.



The **Create Table** window appears.

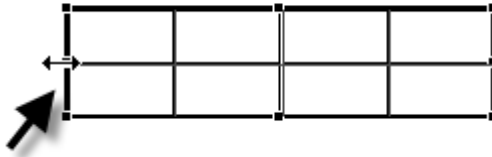
- ___ 4. Change the number of columns to 4 and click **OK**.



- ___ 5. You will see the table on the designer.



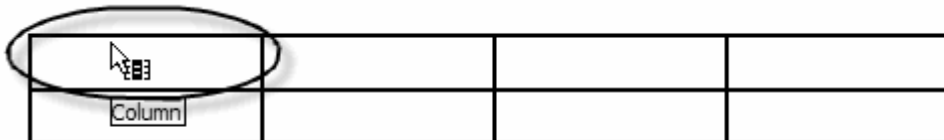
- ___ 6. Select the middle point of the left border of the table.



- ___ 7. Use the mouse to drag the left border to the left.



- ___ 8. Double-click the top-left cell of the table.



- ___ 9. Enter **Employee**.

Employee			

- ___ 10. Label the remaining cells in the first row as follows:

Average Cost Per Time Unit

Annual Working Hours


Annual Per Time Unit Cost

Employee	Average Cos...	Annual...	Annual Per...



Note

You may also enter the text in the Attributes - Static Text in the lower pane.

- ___ 11. Move the cursor outside the perimeter of the table and when the cursor changes to this type of arrow: , click to select the entire table.

Employee	Average Cos...	Annual...	Annual Per...

- ___ 12. Resize the table to view the full contents of each cell.

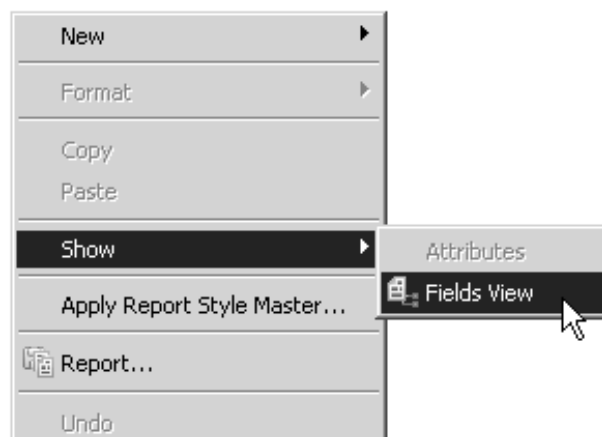
Employee	Average Cos...	Annual...	Annual Per...

Each cell now shows its full text:

Employee	Average Cost Per Time Unit	Annual Working Hours	Annual Per Time Unit Cost

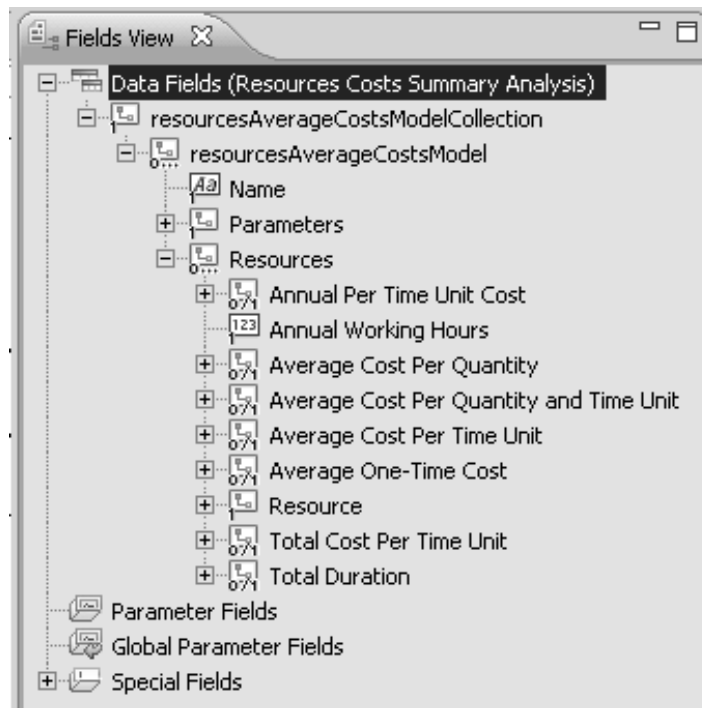
- ___ 13. Right-click from the editor background and select **Show > Fields View**.

Employee	Average Cost Per Time Unit	Annual Working Hours	Annual Per Time Unit Cost

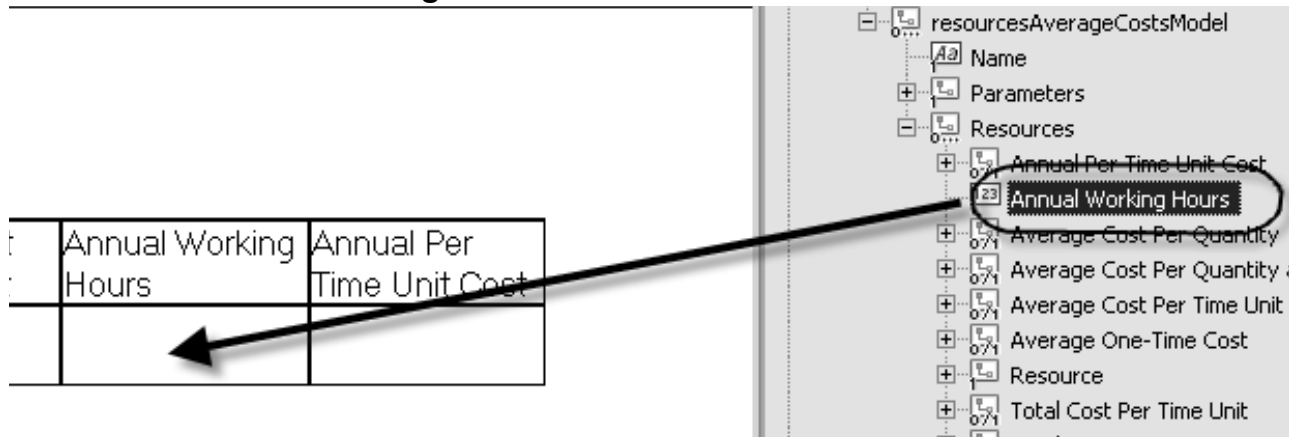


The **Fields View** pane appears on the right.

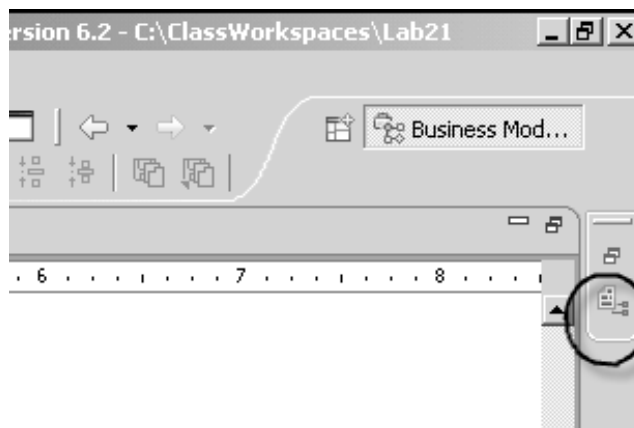
- ___ 14. Press Ctrl+S to save.
- ___ 15. Expand **Data Fields(Resources Costs Summary Analysis) > resourcesAverageCostsModelCollection > resourcesAverageCostsModel > Resources**.



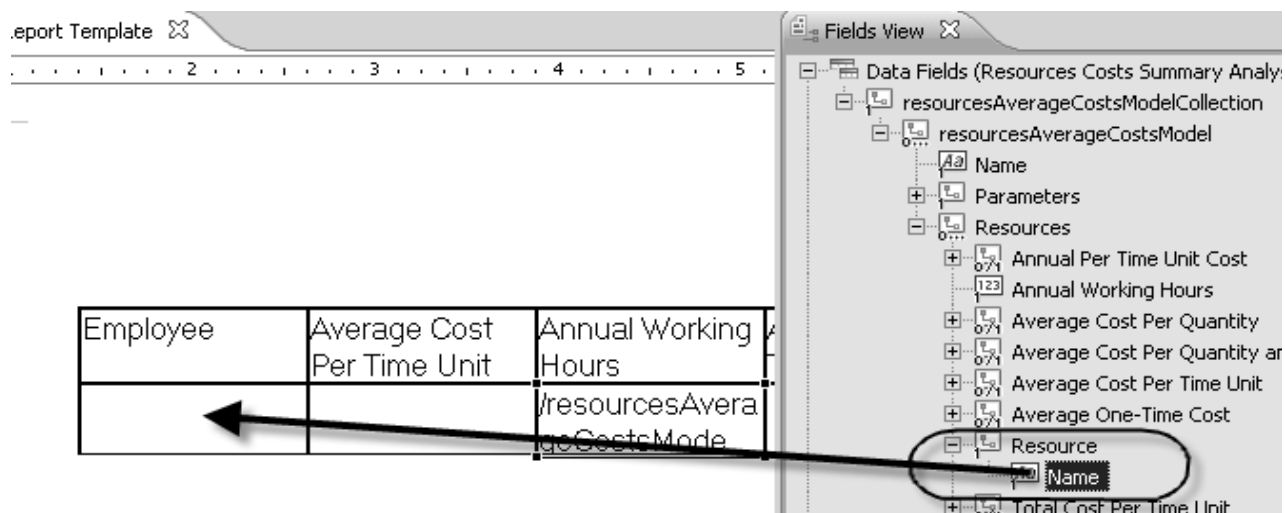
- ___ 16. Select **Annual Working Hours** and drag to the table of the report, into the cell under **Annual Working Hours**.



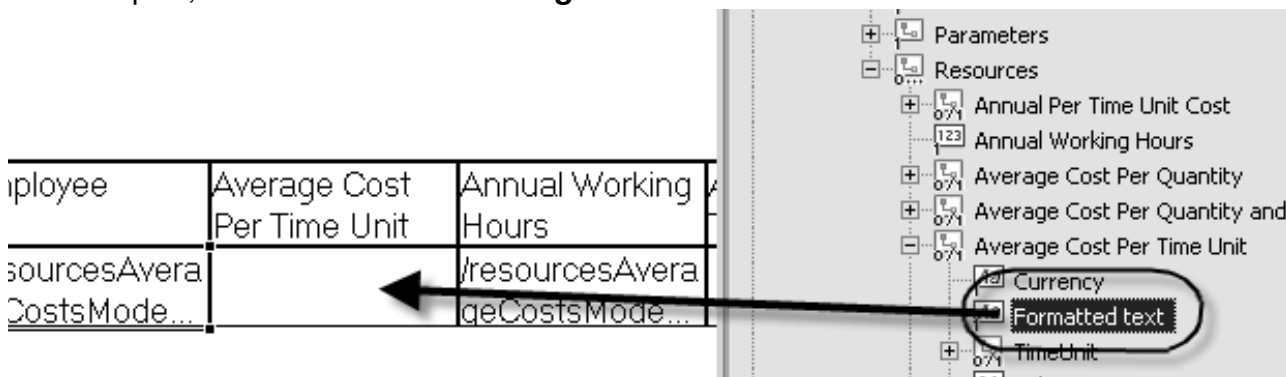
___ 17. To display the Fields View again, click the Fields View icon on the right.



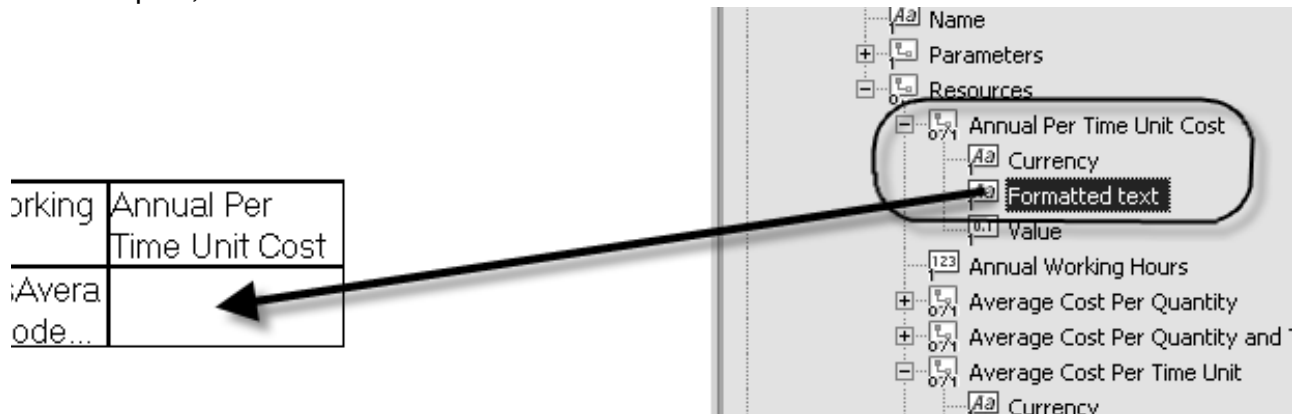
___ 18. Select **Resource > Name** and drag to the table of the report, into the cell under **Employee**.



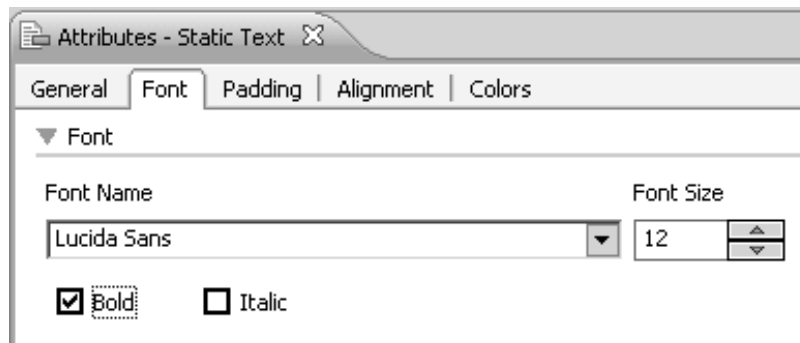
___ 19. Select **Average Cost Per Time Unit > Formatted text** and drag to the table of the report, into the cell under **Average Cost Per Time Unit**.



- ___ 20. Select **Annual Per Time Unit Cost > Formatted text** and drag to the table of the report, into the cell under **Annual Per Time Unit Cost**.



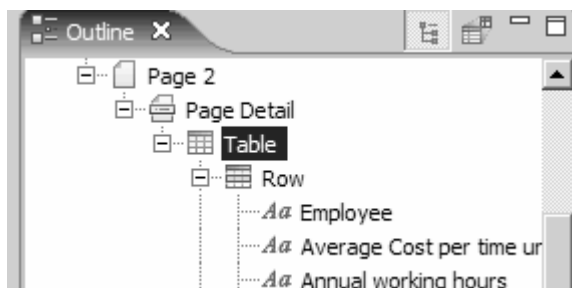
- ___ 21. Double-click the **Employee** cell. In the **Attributes** pane, select the **Font** tab, and click the **Bold** check box.




- ___ 22. Repeat the previous step to bold the remaining cells in the first row.

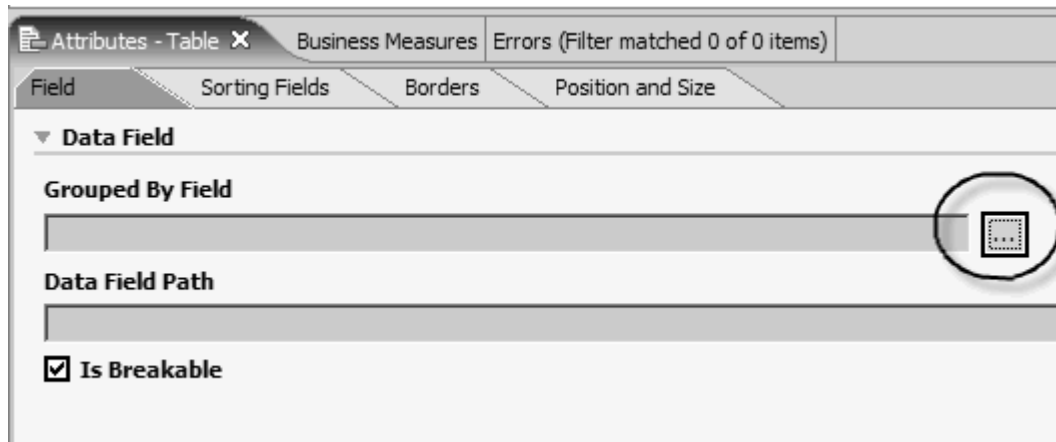
Employee	Average Cost Per Time Unit	Annual Working Hours	Annual Per Time Unit Cost
/resourcesAverageCostsModelCo...	/resourcesAverageCostsModelCo...	/resourcesAverageCostsModelCo...	/resourcesAverageCostsModelCo...

- ___ 23. Switch to 4-pane layout, in the **Outline** view, under **Page 2 > Page Detail**, select **Table**.

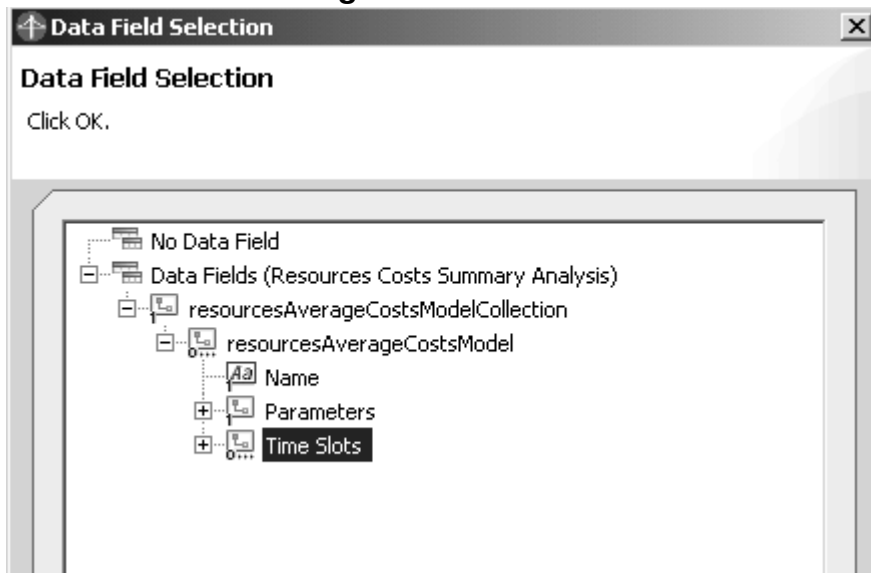


The table in the report is selected.

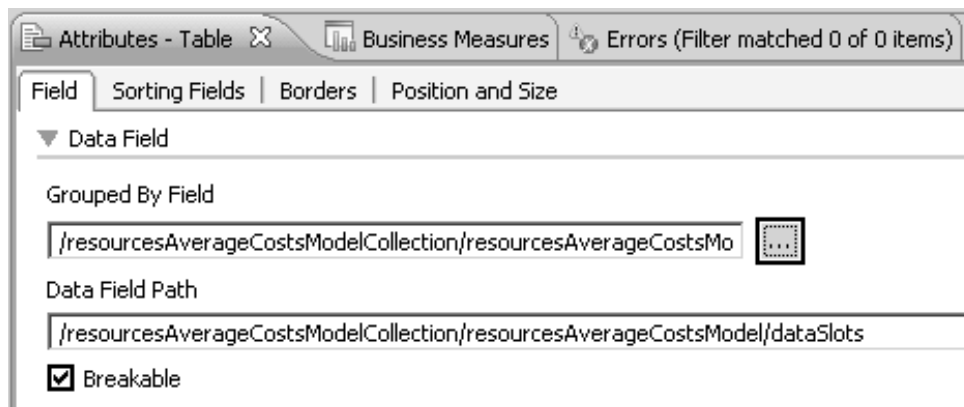
___ 24. In the **Attributes** pane, click the  button next to **Grouped By Field**.



___ 25. Expand all, and select **Time Slots** under **Data Fields(Resources Costs Summary Analysis) > resourcesAverageCostsModelCollection > resourcesAverageCostsModel**.



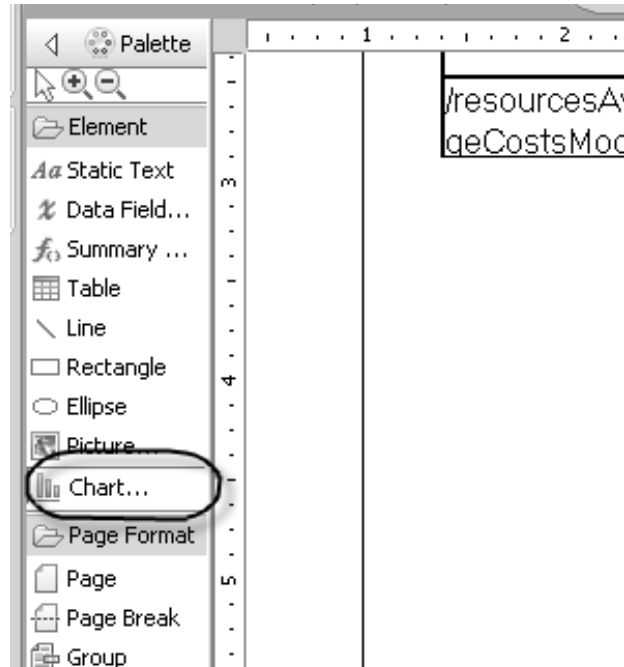
___ 26. Click **OK**.




___ 27. Save your work (Ctrl+S).

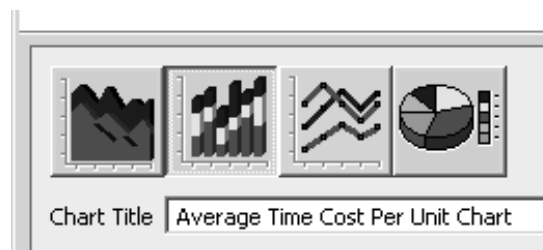
Part 5: Adding report chart

- ___ 1. Click the **Create a new chart** button from the palette and drop onto the report, below the table.



The **New Chart Wizard** dialog box is displayed.

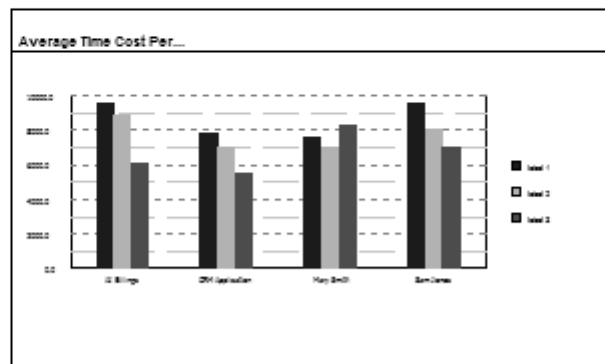
- ___ 2. Click the bar chart  button and enter **Average Time Cost Per Unit Chart** as **Chart Title**.



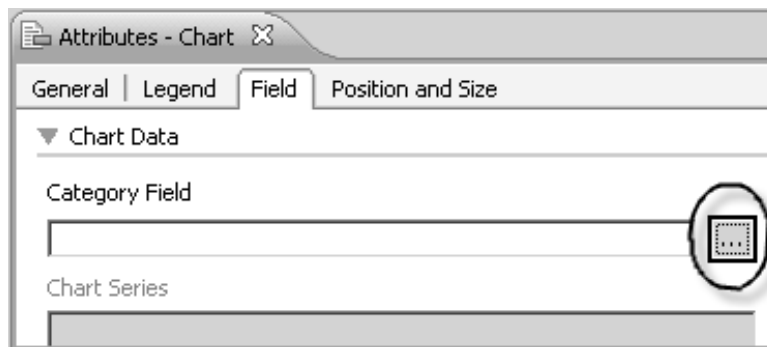
- ___ 3. Click **Finish**.

A sample bar chart will display on the designer.

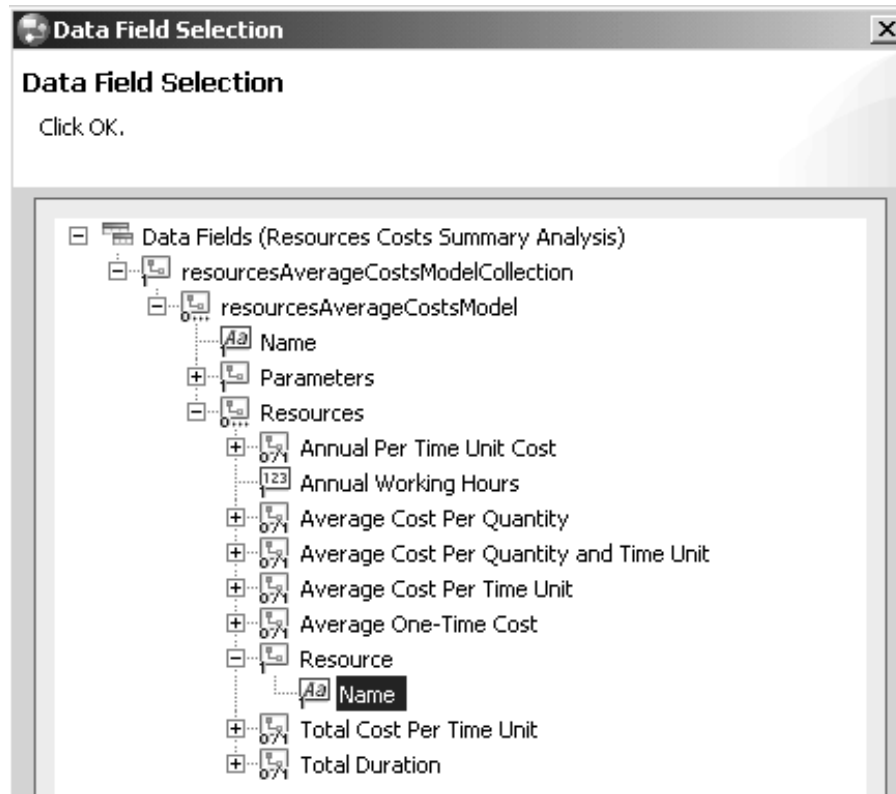
Employee	Average Cost Per Time Unit	Annual Working Hours	Annual Per Time Unit Cost
/resourcesAverageCostsModelCo...	/resourcesAverageCostsModelCo...	/resourcesAverageCostsModelCo...	/resourcesAverageCostsModelCo...



- ___ 4. Double-click the chart in the report template, in the **Attributes - Chart** pane, select the **Field** tab.
- ___ 5. Next to **Category Field**, click the  button.



- ___ 6. From the **Data Field Selection** page, select **Data Fields(Resources Costs Summary Analysis) > resourcesAverageCostsModelCollection > resourcesAverageCostsModel > Resources> Resource > Name**.



- ___ 7. Click **OK**.
- ___ 8. Under **Chart Series**, click **Add**.



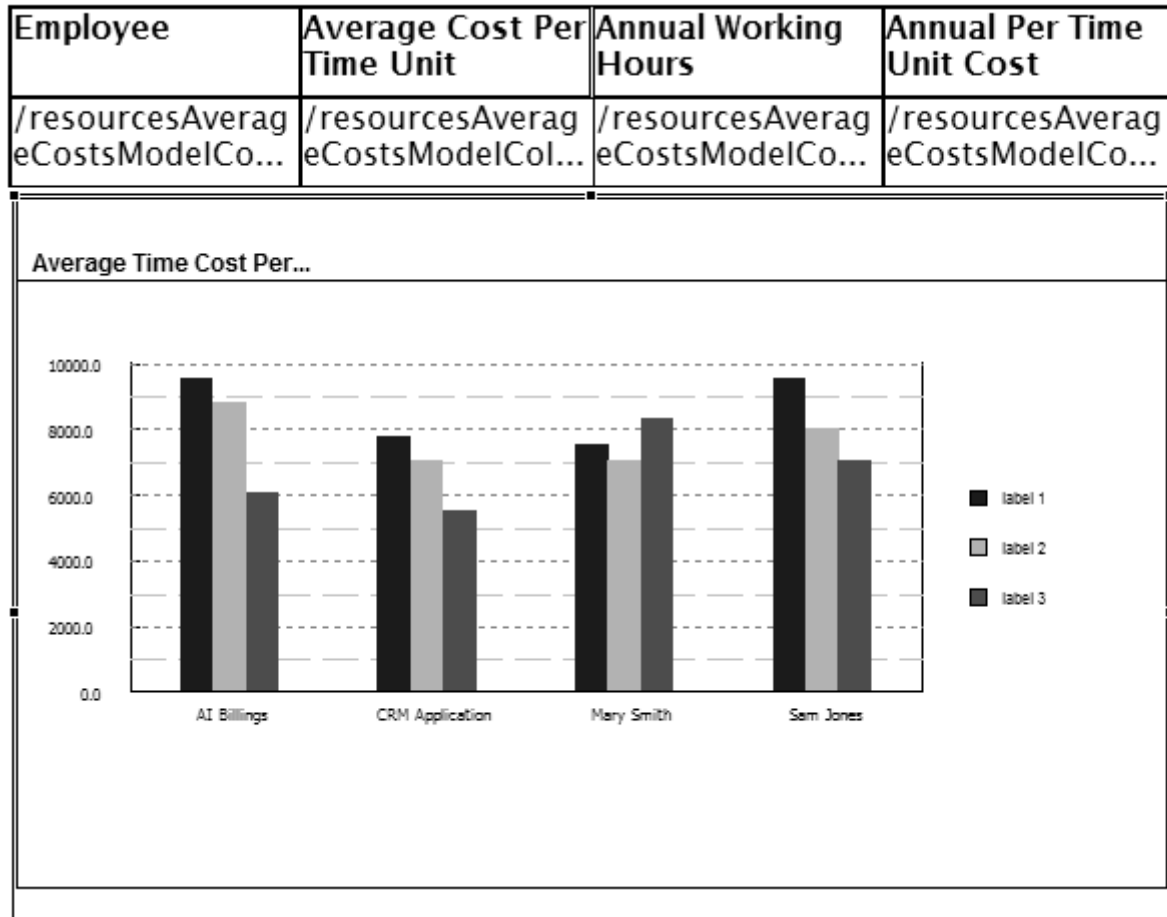
- ___ 9. Enter Cost as a **Series Label**.

- ___ 10. Click **OK**.
- ___ 11. Click the button next to **Value Field**.

- ___ 12. Select From the **Data Field Selection** page, select **Data Fields(Resources Costs Summary Analysis) >resourcesAverageCostsModelCollection >resourcesAverageCostsModel > Time Slots>Average Cost Per Time Unit > Value**.

- ___ 13. Click **OK**.

___ 14. Resize the chart to enlarge the graph.

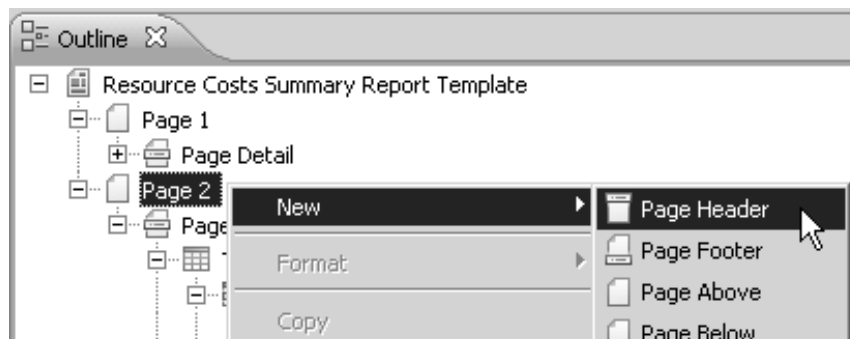


___ 15. Save your work (Ctrl+S).

Part 6: Adding header and footer to report

Although you have applied the report style master to the report templates, data from the style master will not appear in the report templates unless you add a header or footer to the templates.

- ___ 1. To add a footer on the detail page, click the **Apply 4-pane layout** button, go to the **Outline** pane.
- ___ 2. Right-click **Page 2** and select **New > Page Header**.



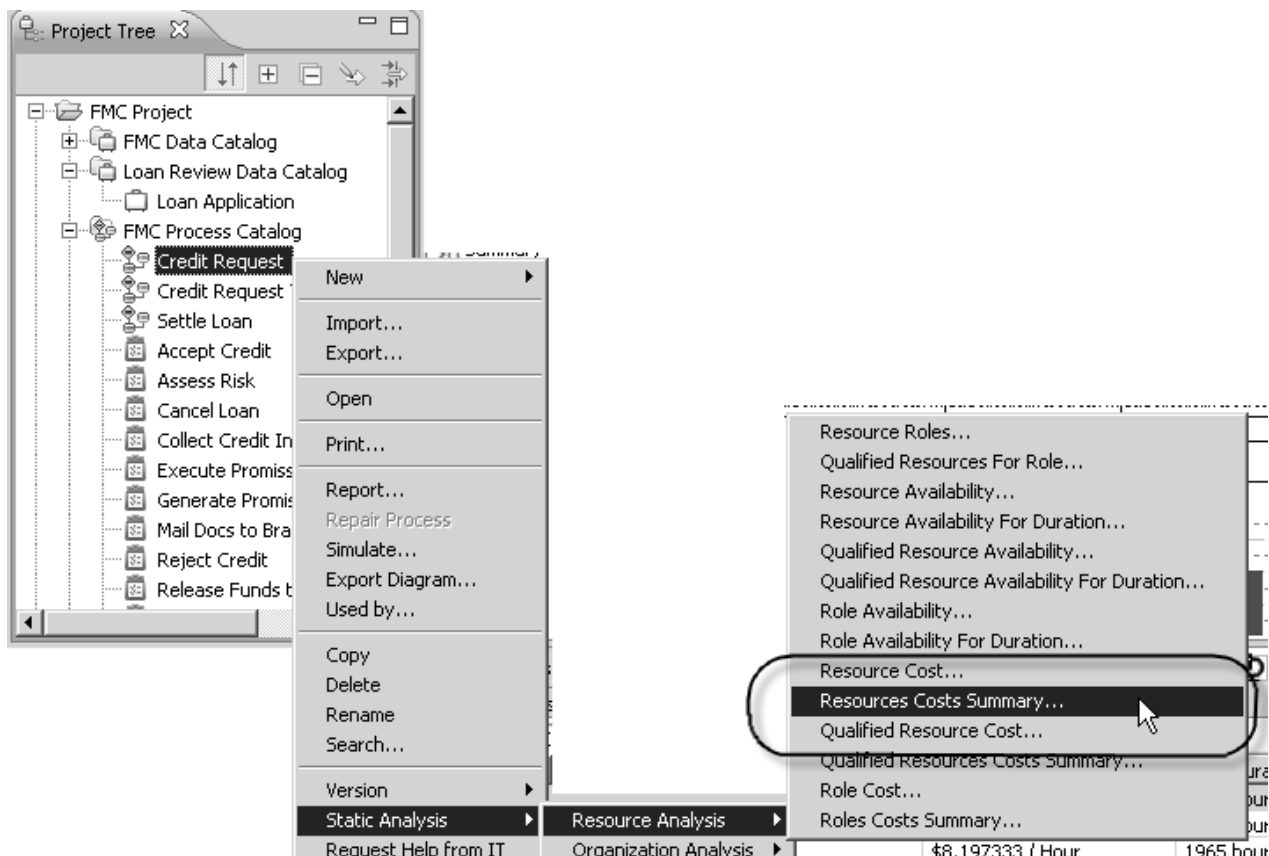
- ___ 3. Right-click **Page 2** again and select **New > Page Footer**.
- ___ 4. Save your work (Ctrl+S).

**Note**

If you make any changes, make sure you save your changes before generating the report. Reports are generated based on the latest saved version.

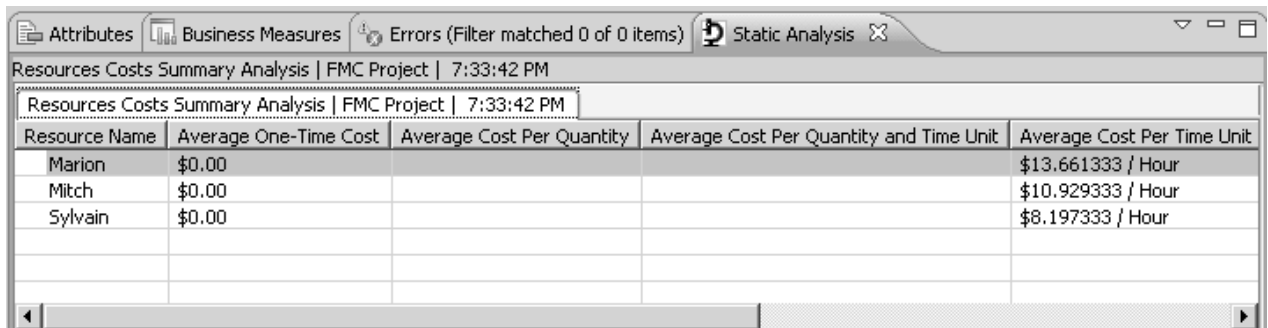
You will run the static analysis that the report template is based on before generating the report.

- ___ 5. In the **Project Tree**, right-click from the **FMC Project > FMC Project > FMC Process Catalog > Credit Request**, and select **Static Analysis > Resource Analysis > Resources Costs Summary**



- ___ 6. Select **FMC Resource Catalog**.
- ___ 7. Click **Next**.
- ___ 8. Click **Finish**.

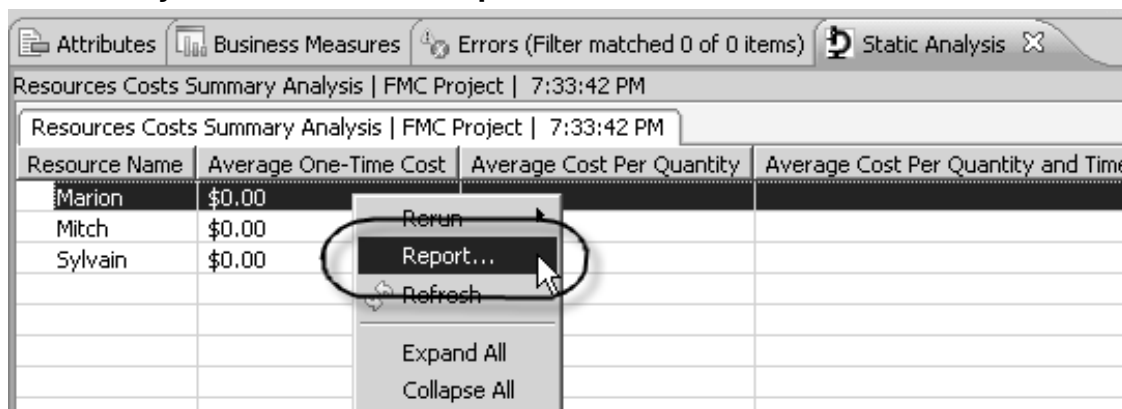
You will see the analysis results table in the lower pane.



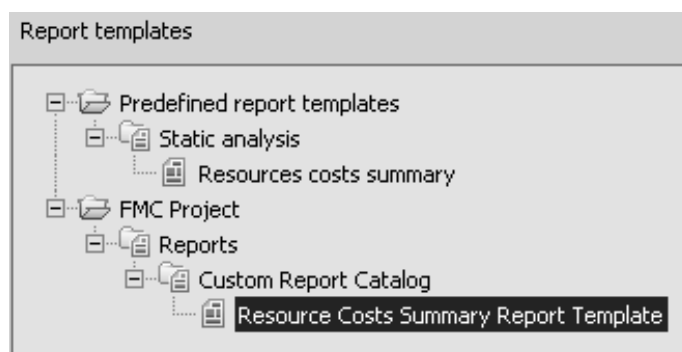
Resources Costs Summary Analysis | FMC Project | 7:33:42 PM

Resource Name	Average One-Time Cost	Average Cost Per Quantity	Average Cost Per Quantity and Time Unit	Average Cost Per Time Unit
Marion	\$0.00			\$13.661333 / Hour
Mitch	\$0.00			\$10.929333 / Hour
Sylvain	\$0.00			\$8.197333 / Hour

- ___ 9. To generate the report, right-click anywhere in the results table in the **Static Analysis** tab and select **Report**



- ___ 10. The Generate Report dialog is displayed.
- ___ 11. Select **Preview and save**.
- ___ 12. Select the **PDF File (pdf)** as format from **Save option**.
- ___ 13. Enter Resource Cost Summary as **Report name**.
- ___ 14. Select **File system**, click **Browse**, type C:\CustomReports, and click **Next**.
- If the directory does not exist, Modeler will create a new folder.
- ___ 15. Select **FMC Project > Reports > Custom Report Catalog > Resource Costs Summary Report Template** from **Report templates**.



___ 16. Click **Next**.

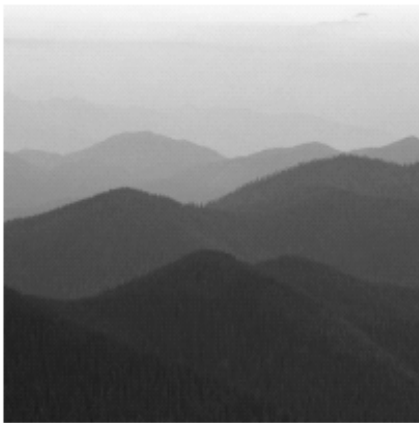
The report preview is displayed. Examine your report that shown on the next two pages.

___ 17. After you preview the report, click **Finish**. The PDF file containing the report is created for you.

___ 18. This is page one of the report.

FMC - Resource Costs Summary

Friday, November 7, 2008

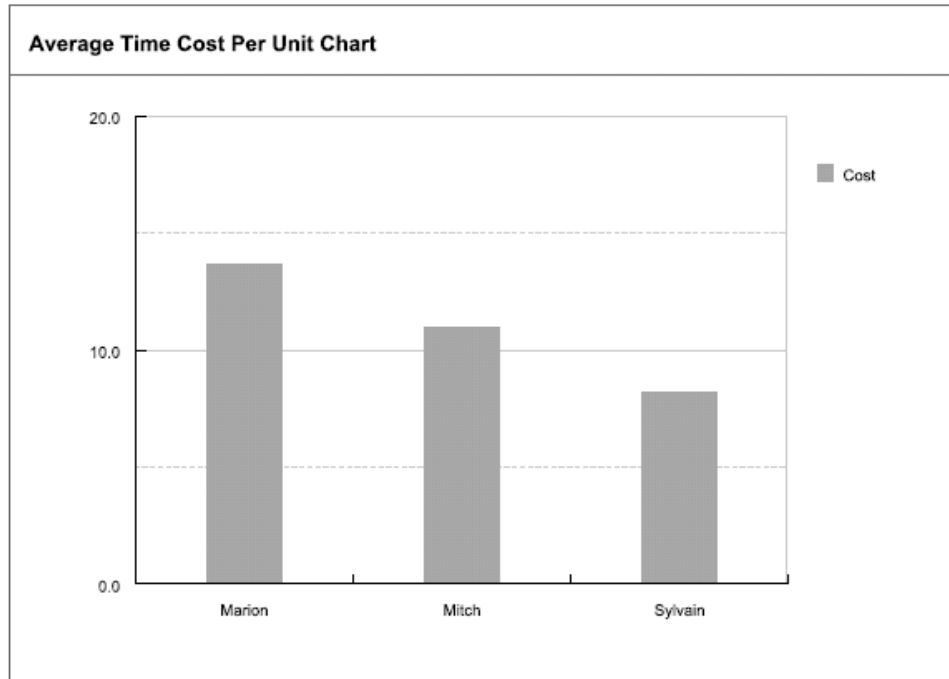


Created by

John Doe

___ 19. This is page two of the report.

Employee	Average Cost Per Time Unit	Annual Working Hours	Annual Per Time Unit Cost
Marion	\$13.661333 / Hour	1965	\$26,844.52
Mitch	\$10.929333 / Hour	1965	\$21,476.14
Sylvain	\$8.197333 / Hour	1965	\$16,107.76



Monday, November 10, 2008

Page 2 of 2

Part 7: Using the Modeler help

Use the search function in Help to locate the following topics and answer the questions.

___ 1. What shapes can you add to your report templates or style masters?

___ 2. What information fields can you add to your report templates or style masters?

___ 3. Exit WebSphere Business Modeler.

___ 4. Review the flashcards for this unit.

End of exercise

Exercise 7. Defining business measures in WebSphere Business Modeler

What this exercise is about

This exercise covers defining business measures.

What you should be able to do

At the end of the exercise, you should be able to:

- Specify Business Performance Indicators by defining key performance indicators, instance metrics, and aggregate metrics
- Specify Monitored Values by selecting the activities and tasks to be monitored by WebSphere Business Monitor

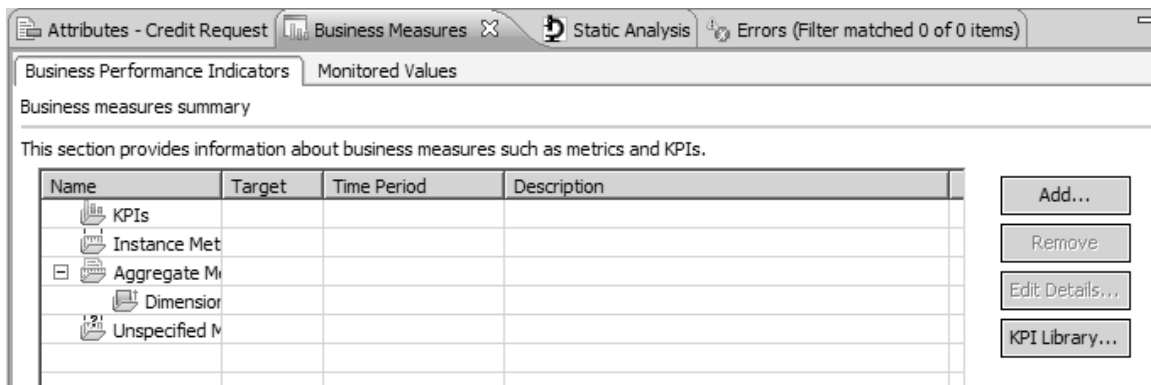
Exercise instructions

In the Business Measures view in Modeler, you can quickly define all the business-level information needed to describe your monitoring needs: the name, description, targets and ranges of each KPI or metric. In addition, you can specify how the resulting information should be presented for monitoring purposes in the dashboard views of IBM WebSphere Business Monitor.

The more complex and technical tasks that are typically performed by integration developers (such as specifying KPI calculations, specifying KPI expressions, and deploying the business measures model in a runtime environment) are delivered as part of the business measures tooling for WebSphere Business Monitor.

Part 1: Adding Business Performance Indicators

- ___ 1. Launch WebSphere Business Modeler and use the following workspace:
C:\workspaces\Lab20_workspace
- ___ 2. From the Project Tree, expand **FMC Project > FMC Process Catalog** and double-click **Credit Request** to open it in the process model editor.
- ___ 3. Click in a white area of the diagram and click the **Business Measures** tab from the bottom pane.



Note

If the Business Measures view is not available, navigate to **Window > Show View > Business Measures** and click **OK**.

The Business Measures view contains two tabs: **Business Performance Indicators** and **Monitored Values**.

The monitored values are the part of the monitor model that can be measured during the execution of the business process. After executing the business process, the results

can be imported back into WebSphere Business Modeler. This helps improve the accuracy of the simulations.

Specifying key performance indicators (KPIs)

You can have a business measure displayed as a key performance indicator (KPI) in WebSphere Business Monitor. KPIs are the detailed specifications used to track business objectives, and they usually have a target or range, or both. These measure how well a business is achieving its objectives. KPIs are calculated using data from multiple runs of the process.

- ___ 1. From the Business Measures view, ensure that the **Business Performance Indicators** tab is selected.
- ___ 2. Next to the **Business measures summary** table, click **Add**. The **Business Measure Details** window displays.
- ___ 3. For **Name**, enter `RequestTime`
- ___ 4. For **Type**, select **KPI**.
- ___ 5. For Description, enter the following content: `Time for a credit request to be processed`.

The screenshot shows a form titled "Business Measure Information" with a dropdown arrow on the left. It contains three fields: "Name" with the value "RequestTime", "Type" with four radio button options (KPI, Instance metric, Aggregate metric, Unspecified) where "KPI" is selected, and "Description" with the text "Time for a credit request to be processed".

Business Measure Information	
Name	RequestTime
Type	<input checked="" type="radio"/> KPI <input type="radio"/> Instance metric <input type="radio"/> Aggregate metric <input type="radio"/> Unspecified
Description	Time for a credit request to be processed

- ___ 6. Click **Dashboard Samples** tab to view the descriptions, and click **KPI Gauge** to view the Gauge View.

▼ Dashboards

Dashboards present continuously updated business measures data in a graphical format to make it easy to track process performance.

A KPI is calculated across multiple runs of the process and is used to track business objectives. Examples of KPIs and their targets are "Average time for response to a customer inquiry" with a target of "less than two days", "Achieve target profit" with a target of "\$65000," or "Reduce employee turnover" with a target of "5%". This type of data can be displayed in the following dashboards:

KPI Table: Displays details of modeled Key Performance Indicators (KPIs) such as KPI value relative to the defined ranges and the target, if applicable, and the status.

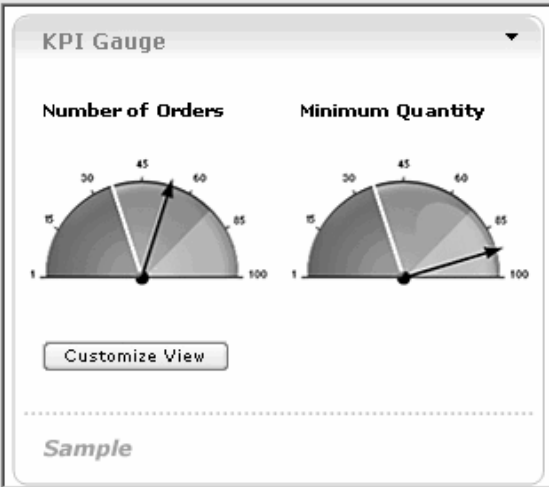
KPI Gauge: Displays an individual KPI value, relative to the KPI range and target in a full or half gauge format, if applicable.

KPI Bar: Displays an individual KPI value, relative to the KPI range and target in bar format, if applicable.

Alerts: Displays alerts that notify users of defined situations occurring at run time.

Dimensional: Provides a multidimensional view of business performance data. Charts and grids present data for analysis against different dimensions.

Report: Displays performance reports relative to a time axis. Such reports typically contain tables and graphs with textual descriptions of the analysis.



KPI Gauge

Number of Orders **Minimum Quantity**

Customize View

Sample

- ___ 7. Click **Business Measure Details** tab.
- ___ 8. Specify a target value of 3 days.
- ___ a. Scroll down and click the **Specify a target value and type** check box.
- ___ b. For **Type**, select **Duration** from the drop-down menu
- ___ c. For **Target value**, select **3 Days** from the drop-down menu

▼ **Target Type and Value**

The target is an exact value that the KPI should achieve.

☒ Specify a target type and value

Type: Duration

Days: 3 Hours: 0 Minutes: 0 Seconds: 0 Milliseconds: 0

- ___ 9. Specify ranges details.
- ___ a. Select the **Specify range details** check box.
- ___ b. Select the **Actual value** option.
- ___ c. Click the **Add** button next to **Specify ranges** table and enter the following:
- a. Click the name **Range 1** and rename it to **Low**

- b. Click under the column **Start value** and select **1 second** from the **Select duration** pop-up window.
- c. Click **OK**.
- d. In the **End value** column, change the value to **2 days**.
- e. Click **OK**.

▼ Ranges

☒ Specify range details:

Ranges can be defined as percentages of the target value or as fixed, actual values.

☐ Percentage of target value (target value = 100%)

☒ Actual value

Specify ranges

A range is a set of values, such as allowable margins or lower and upper limits, against which to track your KPI.

Range Name	Start Value	End Value
Low	1 Second	< 2 Days 0 Seconds

- f. Repeat the steps above to add two more entries in the **Specify ranges** table with the following values:
 - Range name: ~~Expected~~, Start Value: 2 days, End value: 3 days
 - Range name: ~~High~~, Start value: 3 days, End value: 24 days
- g. The following three entries should now be in the **Specify ranges** table.

Specify ranges

A range is a set of values, such as allowable margins or lower and upper limits, against which to track your KPI.

Range Name	Start Value	End Value
Low	1 Second	< 2 Days 0 Seconds
Expected	2 Days 0 Seconds	< 3 Days 0 Seconds
High	3 Days 0 Seconds	< 24 Days 0 Seconds

You can select **Percentage of target value** to have the target value treated as 100% for setting the ranges, or select **Actual value** if you have no target or want to specify exact values. For example, you might have an Acceptable range that is from 90% to 100% of the target and a Good range that is from 100% to 110% of the target. Or, using actual values, you might have an Acceptable range that is from 5 to 10 and a Good range that is from 10 to 20.



Note

After adding ranges, you can click **Sort** to sort them from the lowest start value to the highest start value.

- ___ 10. Create an Alert action.
- ___ a. Select the **Specify when to send an alert and the action to take as a result** check box.
- ___ b. Next to the **Alert description** table, click **Add**.
- ___ c. Leave the default value **Request Time Alert** for Alert description.

Alerts

You can specify instructions for notification when specific conditions occur. For example, when this measure exceeds a certain value, send an email.

☒ Specify when to send an alert and the action to take as a result

Alert Description
RequestTime Alert

Add Remove

- ___ 11. Specify a time period over which the business measure will be monitored.
- ___ a. Select the **Specify a time period over which the business measure will be monitored** check box.
- ___ b. Select the **Rolling** option.
- ___ c. For **Last**, enter 30 days.

Time Period for Data Collection

☒ Specify a time period over which the business measure will be monitored

☐ Repeating
 ☒ Rolling
 ☐ Fixed

Period type: Yearly
 Last: 30 days
 Start date:
 End date:



Note

Rolling: Select the Number of previous days that you want to see and specify whether you want to include the last full day (yesterday) or the day in progress. For example, if you select 30 days, you will see the value of the KPI based on the last 30 days either up until yesterday, or up to the current time.

Repeating: Select the Period type (daily, monthly, or yearly) and specify whether you want to see the last full period or the period in progress. For example, if you select daily, then the KPI can either show the value from yesterday, or the value based on the day so far.

- ___ 12. Specify KPI data filter to restrict the set of information that will be used to calculate the value of the KPI at run time.
- ___ a. Select the **Specify data filters to limit the values included in the calculation of this KPI** check box.
 - ___ b. Next to the table, click **Add**.
 - ___ c. Enter **Credit Request Dimension** as the Data Filter Name.

KPI Data Filter



You can restrict the information that will be included in the calculation of the KPI. For example, for your Sales In London KPI, you could set the data filter name to City and the value to London.

☒ Specify data filters to limit the values included in the calculation of this KPI

Data Filter Name	Values to Include
Credit Request Dimension	

Add Remove

- ___ 13. Click **OK** at the bottom of the **Business Measure Details** window.
- You will see a new entry **RequestTime** under **KPIs** under **Business measures summary**.

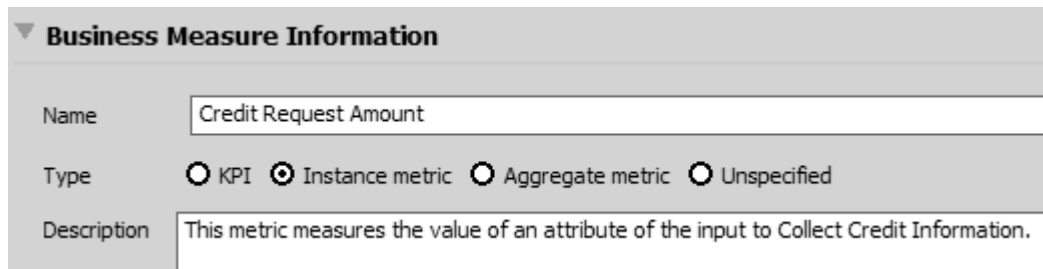
Name	Target	Time Period	Description
 KPIs			
 RequestTime	3 Days ...	Rolling: 30 days	Time for a credit request to be processed
 Instance Metrics			
 Aggregate Metrics			
 Dimensions			
 Unspecified Metrics			

- ___ 14. Save your work (Ctrl + S).

Specifying Instance Metrics

You can have a business measure displayed as an instance metric in WebSphere Business Monitor. Instance metrics capture a result from one run (or instance) of the process.

- ___ 1. In the **Business Measures** view, ensure that the **Business Performance Indicators** tab is selected.
- ___ 2. Next to the **Business measures summary** table, click **Add**. The **Business Measure Details** window displays.
- ___ 3. Enter **Credit Request Amount** for the **Name**.
- ___ 4. Select **Instance metric** for the **Type**
- ___ 5. For **Description**, enter **This measure will capture the loan amount per credit request.**



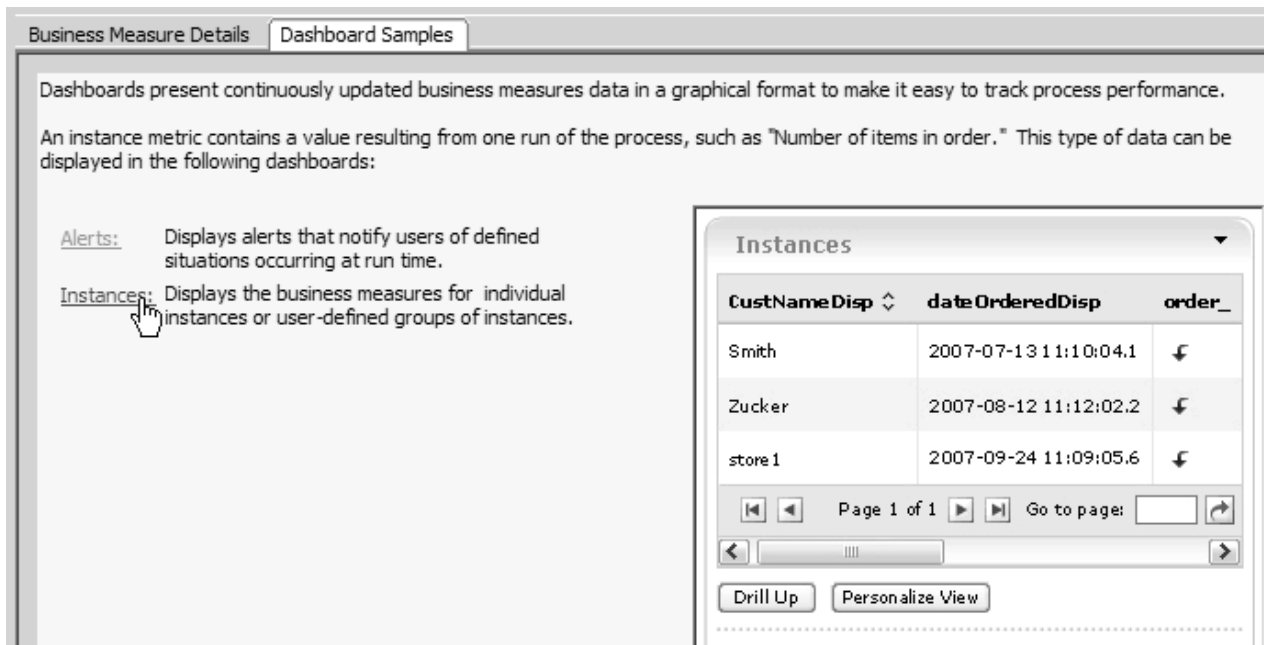
Business Measure Information

Name: Credit Request Amount

Type: ☐ KPI ☒ Instance metric ☐ Aggregate metric ☐ Unspecified

Description: This metric measures the value of an attribute of the input to Collect Credit Information.

- ___ 6. Expand **Dashboard Samples** to view the sample instance metric.



Business Measure Details | Dashboard Samples

Dashboards present continuously updated business measures data in a graphical format to make it easy to track process performance.

An instance metric contains a value resulting from one run of the process, such as "Number of items in order." This type of data can be displayed in the following dashboards:

Alerts: Displays alerts that notify users of defined situations occurring at run time.

Instances: Displays the business measures for individual instances or user-defined groups of instances.

Instances

CustNameDisp	dateOrderedDisp	order_
Smith	2007-07-13 11:10:04.1	↕
Zucker	2007-08-12 11:12:02.2	↕
store 1	2007-09-24 11:09:05.6	↕

Page 1 of 1 | Go to page: |

Drill Up | Personalize View

- ___ 7. Click **Business Measure Details** tab.
- ___ 8. Specify Type and Default value.
 - ___ a. Select the **Specify a default value and Type** check box.

- ___ b. For **Type**, select **text** from the drop-down menu.
- ___ c. For **Default value**, enter 10000.

Type and Default Value

☒ Specify a default value and type

Type:

Default value:

- ___ 9. Specify **Instance Metric Calculation Details**.
 - ___ a. Select the **Specify a predefined business measure template for this metric** check box.
 - ___ b. Select **Business Item Input** as template.
 - ___ c. Select **Collect Credit Information** as Process element.
 - ___ d. Click **Browse** to select **Credit Amount**.

Instance Metric Calculation Details

You can monitor standard characteristics of a process element using a predefined business measure template.

☒ Specify a predefined business measure template for this metric

Template:

Process element:

Attribute:

- ___ 10. Specify alert descriptions.
 - ___ a. Select the **Specify when to send an alert and the action to take as a result** check box.
 - ___ b. Click **Add**.
 - ___ c. In the **Alert description** table replace **Credit Request Amount Alert** with **When the credit request amount is less than 100**.

- ___ d. Click **Add** again to add one more Alert description:
 When the credit request amount is greater than 50000

Alerts

You can specify instructions for notification when specific conditions occur. For example, when this measure exceeds a certain value, you can send an email.

☒ Specify when to send an alert and the action to take as a result

Alert Description
When the credit request amount is less than 100
When the credit request amount is greater than 50000

- ___ 11. Click **OK** in the **Business Measure Details** window.
 You will see a new entry **Credit Request Amount** under **Instance metric** in the Business measures summary.
- ___ 12. Save your work (Ctrl + S).

Specifying Aggregate Metrics

You can have a business measure displayed as an aggregate metric in WebSphere Business Monitor. Aggregate metrics are calculated across multiple runs (or instances) of the process so that you can find the average, maximum, minimum, sum, or number of occurrences.

- ___ 1. Next to the **Business measures summary** table, click **Add**.
 The **Business Measure Details** window displays.
- ___ 2. For **Name**, enter Credit Risk.
- ___ 3. For **Type**, select the radio button next to **Aggregate metric**.
- ___ 4. Enter the following **Description**: This metric is used to gather information about credit risk with respect to the geographical distribution (e.g, zip code) of the customer

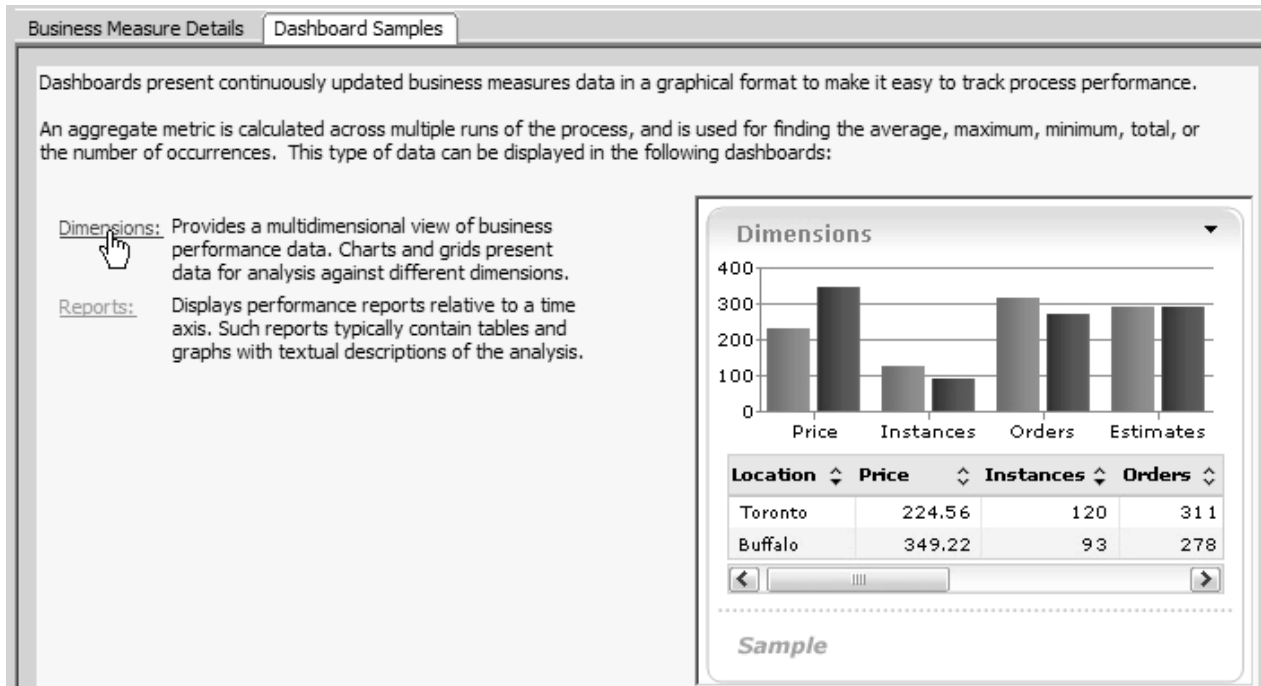
Business Measure Information

Name: Credit Risk

Type: ☐ KPI ☐ Instance metric ☒ Aggregate metric ☐ Unspecified

Description: This metric is used to gather information about credit risk with respect to the geographical distribution (e.g, zip code) of the customer.

- ___ 5. Click the **Dashboard Samples** and select **Dimensions** to view a sample dimensional view.



- ___ 6. Click **Business Measure Details** tab.
- ___ 7. Specify Aggregation function.
- ___ a. Select the **Specify how to aggregate this measure across multiple runs of the process** check box.
- ___ b. For **Function**, accept the default value of **Average**.
- ___ 8. Select the **Specify the dimension that will be available in the dashboards for analysis of this metric** check box and you will add the following entries:
- **Credit Request Dimension**
 - **Zip Code**

▼ **Aggregation Function**

☒ Specify how to aggregate this measure across multiple runs of the process

Function:

▼ **Dimensions for Analysis**

You can specify categories that you can use to organize and select data for reporting and analysis. Example dimensions might include location, city and sales representative.

☒ Specify the dimensions that will be available in the dashboards for analysis of this metric

Dimension
Credit Request Dimension
Zip Code

Add Remove

- ___ 9. Click **OK** in the **Business Measure Details** window.
You will see a new entry **Credit Risk** under **Aggregate metric > Dimensions** under the Business measures summary.

Name	Target	Time Period	Description
KPIs			
RequestTime	3 Days ...	Rolling: 30 days	Time for a credit request to be processed
Instance Metrics			
Credit Request Amount			This metric measures the value of an at
Aggregate Metrics			
Dimensions			
Credit Risk			This metric is used to gather information
Unspecified Metrics			

- ___ 10. Save your work (Ctrl + S).

Specifying Monitored Values

The Monitor Model is exported from the WebSphere Business Modeler and imported into the Monitor Toolkit. There, it is completed and then deployed using the WebSphere Business Monitor. The processing times are collected and averaged over a period of time. They are then exported from the WebSphere Business Monitor and the new values are imported into the WebSphere Business Modeler. After the import, the value for the duration of the Business Process will be updated with the new value.

Subsequent simulations will be based on this new information, providing more accurate simulations.

- ___ 1. In the **Business Measures** pane, select the **Monitored Values** tab.
- ___ 2. At this point, you are only interested in capture the processing time of the process to be monitored. Select the check boxes next to the following Process Element under the Processing Time columns as shown below.

Process Element	Processing Time	Processing Cost	Startup
Accept Credit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accept Credit?			
Approve Credit?			
Assess Risk	<input checked="" type="checkbox"/> Average Assess Risk Processing Time	<input type="checkbox"/>	<input type="checkbox"/>
Collect Credit Information	<input checked="" type="checkbox"/> Average Collect Credit Information Processing Time	<input type="checkbox"/>	<input type="checkbox"/>
Credit Request	<input checked="" type="checkbox"/> Average Credit Request Processing Time	<input type="checkbox"/>	<input type="checkbox"/>
Reject Credit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Request Management Approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

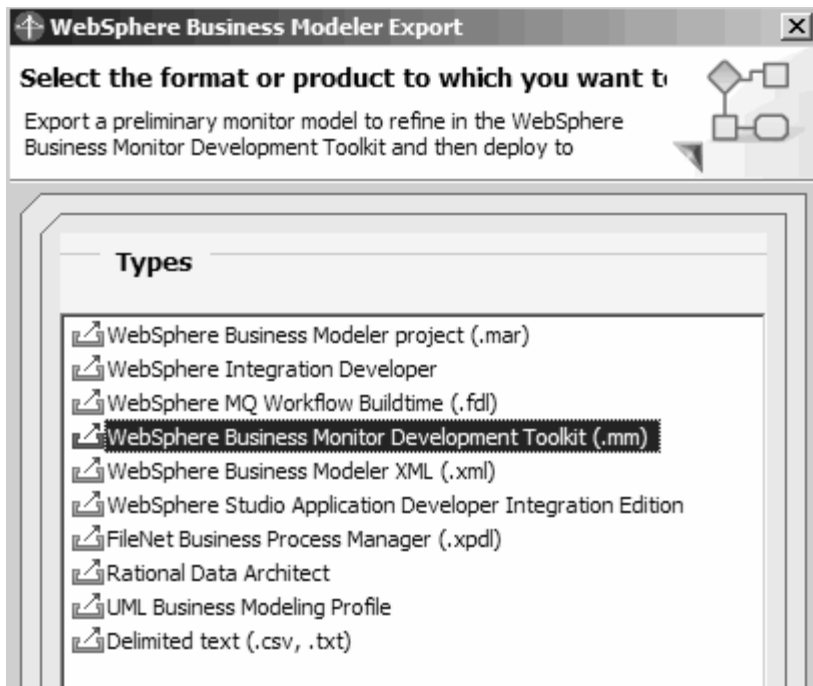
- ___ 3. Save your work (Ctrl + S) and close the process editor.

Part 2: Exporting the monitor model (optional)

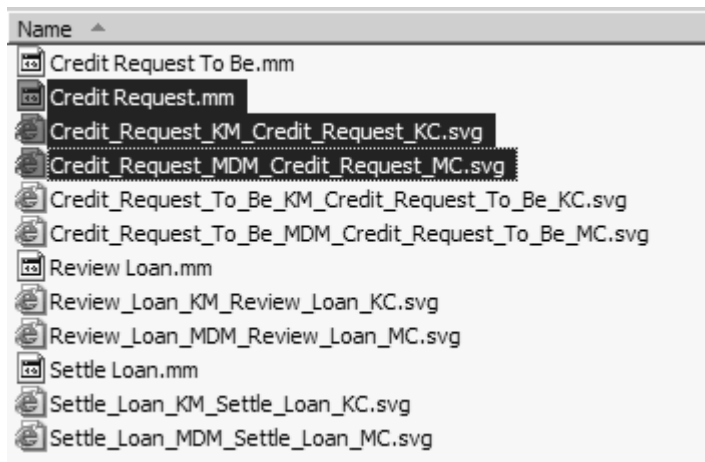
The exported monitor model file is in an MM file in XML format. Several SVG diagrams are also exported. One SVG file is generated for each process, subprocess, and loop in the

process diagram. A second SVG file is generated for the KPI context that will be used for aggregation information.

- ___ 1. From the Project Tree, right-click **FMC Project** and select **Export**.
- ___ 2. Select **WebSphere Business Monitor Development Toolkit (.mm)**.



- ___ 3. Click **Next**.
- ___ 4. For **Target directory** specify the location where you want to export the monitor model: `C:/workspaces/MeasuresResult`
- ___ 5. For **Project**, ensure that **FMC Project** is selected.
- ___ 6. Ensure **Export entire project** is selected and click **Finish**.
- ___ 7. Click **OK** from the **Export finished** window.
- ___ 8. Review the exported monitor model.
 - ___ a. Open a Windows explorer and browse to `C:/workspaces/MeasuresResult`, where you exported the business measures in the previous steps.



- ___ b. Explore the MM files using Notepad and SVG files using internet explorer.
- ___ 9. Save changes (Ctrl+S).

Part 3: Using the Modeler help

Use the search function in Help to locate the following topics and answer the questions.

- ___ 1. What is modeling for monitoring?
- _____
- ___ 2. How do you model business measures for deployment?
- _____
- ___ 3. Exit WebSphere Business Modeler.
- ___ 4. Review the flashcards for this unit.

Part 4: Next steps: Importing into WebSphere Business Monitor Development Toolkit

A technical user, such as a systems analyst, imports the model from WebSphere Business Modeler into the WebSphere Business Monitor Development Toolkit in WebSphere Integration Developer.

Alternatively, the systems analyst or developer has the option of creating the monitor model from scratch. A monitor model can be created to collect events from any Common Base Event (CBE) producer, such as BPEL processes, human tasks, SCA interface operations (in assembly diagrams), and enterprise service bus mediation flows. The systems analysts can generate or create event definitions.

The completed monitor model identifies the events that WebSphere Business Monitor should look for, and includes directions for what should be done with each event. The monitor model created in the Monitor Model editor can be transformed into executable code for WebSphere Business Monitor.

End of exercise

Exercise 8. Exporting from WebSphere Business Modeler

What this exercise is about

This exercise covers exporting from WebSphere Business Modeler.

What you should be able to do

At the end of the exercise, you should be able to:

- Prepare a model for export to WebSphere Integration Developer
- Validate the process model

Exercise instructions

In this exercise, you will prepare the Customer Order Handling process for WebSphere Process Server export.

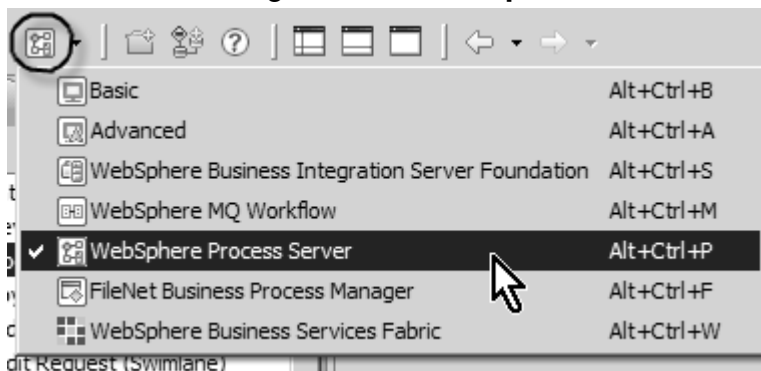
The process will need to be updated according to the validation errors.

Part 1: Opening workspace

- ___ 1. Launch WebSphere Business Modeler and use the following workspace:
C:\workspaces\Lab21_workspace

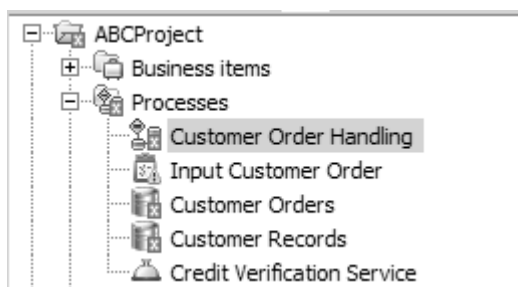
Part 2: Preparing for the export

- ___ 1. From the Project Tree under **ABC Project > Processes**, right-click **Customer Order Handling** and select **Open**.
- ___ 2. Switch the modeling mode to **WebSphere Process Server**.

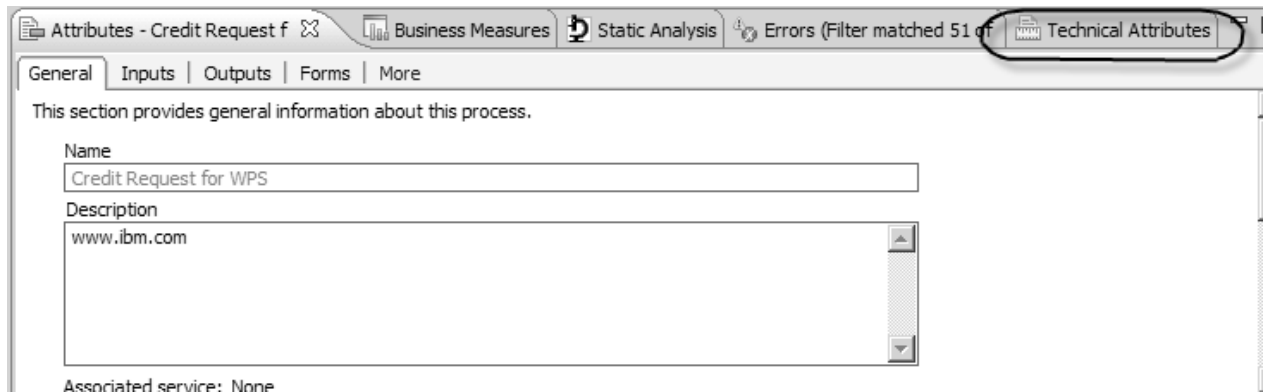


Part 3: Reviewing error messages

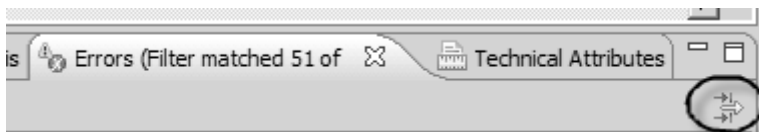
Red **Xs** are displayed on some of the elements in the Project Tree. These elements contain objects that are not supported by WebSphere Process Server.



- ___ 3. Note that a new tab has appeared in the lower right pane: **Technical Attributes view**.

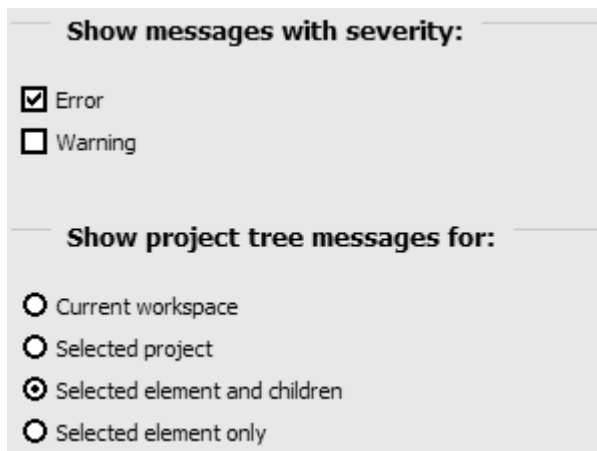


- ___ 4. Click the **Errors** tab.
- ___ 5. In the top-right corner of the **Errors** pane, click the **Filter options dialog** button.



The **Filter Errors view** window is displayed.

- ___ 6. Clear the check box next to **Warning**, and click the check box next to **Selected element and children** under **Show project tree messages for**, and click **OK**.



Warnings have been removed from the **Errors** view:

	Description	Element name	Element type	Parent project	Parent name
⊗	Global Repository "Customer Orders" in "Proce...	Customer Orders	Repository	ABCProject	Customer Orde
⊗	Repository data output "Output:2" on "Fork" m...	Output:2	Repository dat...	ABCProject	Customer Orde
⊗	Repository data input "Input" on "Retrieve Cus...	Input	Repository dat...	ABCProject	Customer Orde
⊗	Repository data input "Input:2" on "Credit Veri...	Input:2	Repository dat...	ABCProject	Customer Orde

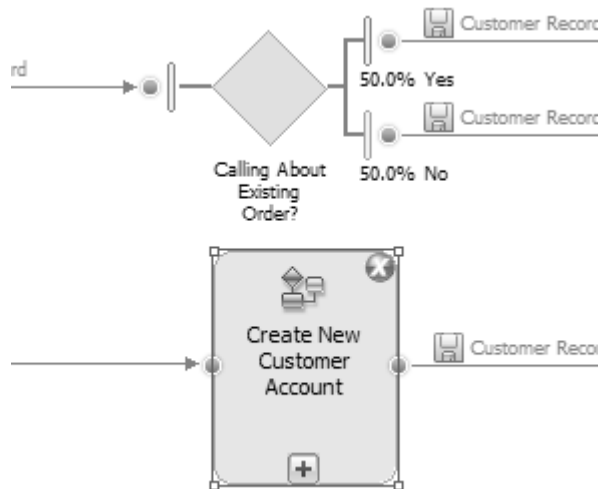
Part 4: Fixing errors

There are three groups of errors in the Error view:

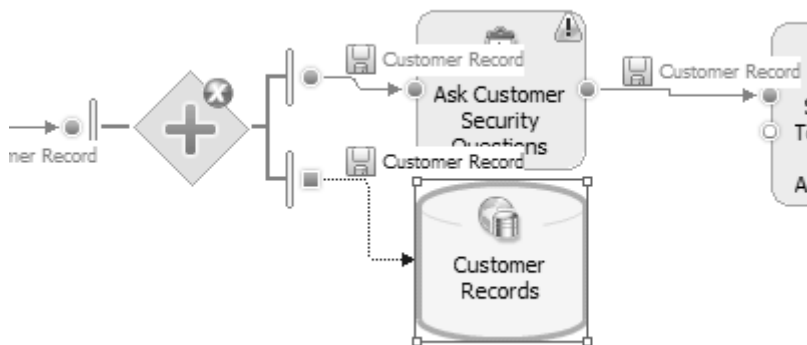
- Global Repository of Customer Orders
- Global Repository of Customer Records
- No if-then rules defined for Business Rules

Since Global Repository is not supported when exporting in WebSphere Process Server mode, you will replace the global repository with a local one.

- ___ 7. Use the Outline pane to locate the Customer Records global repository in the process. Click the **Structure** icon on the Outline pane.
- ___ 8. Expand **Customer Order Handling**, select **Create New Customer Account**
- ___ 9. Click the (+) on the **Create New Customer Account** to expand the subprocess.



- ___ 10. Select **Customer Records** under **Create New Customer Account** as it will highlight the element in the diagram.



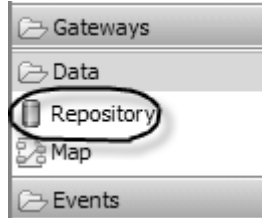
- ___ 11. Delete **Customer Records** from the diagram.

Repository must not refer to a global repository. Only local repositories are supported.

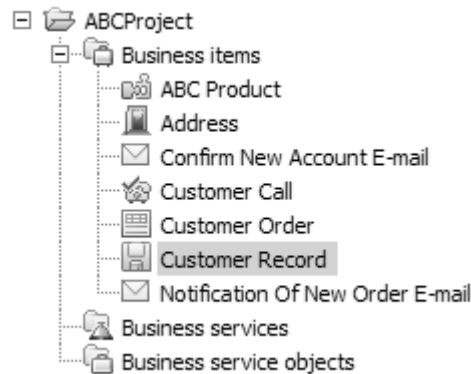
It is because there is no equivalent construct in BPEL. By default, BPEL export generates an empty Java activity for repository inputs and outputs that access a global repository.

To fix the error, use a local repository instead.

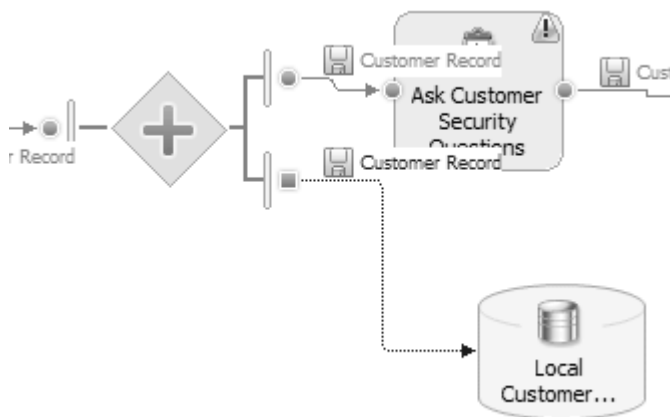
- ___ 12. Replace it with a local repository and name it **Local Customer Records**. Click the local repository icon from the palette.



- ___ 13. Right-click **Local Customer Record**, and select **Associate data**.
- ___ 14. Select **Customer Records** and click **OK**.

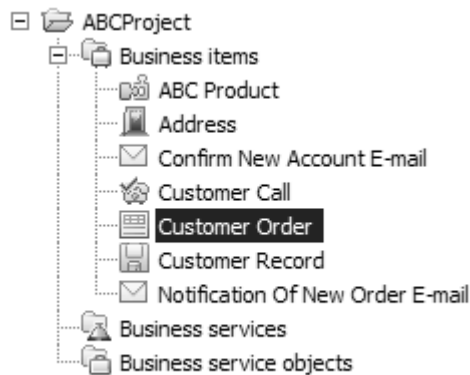


- ___ 15. Connect the **Fork** to the **Local Customer Records** repository.



- ___ 16. Save your work (Ctrl+S).
- The red **X** disappears from the fork.
- ___ 17. Collapse the **Create New Customer Account** subprocess by clicking the (-) sign.
- ___ 18. Select **Customer Orders** on the list on **Outline** pane.
- ___ 19. Replace the global repository with local repository.

___ 20. Right-click to associate with Customer Order.

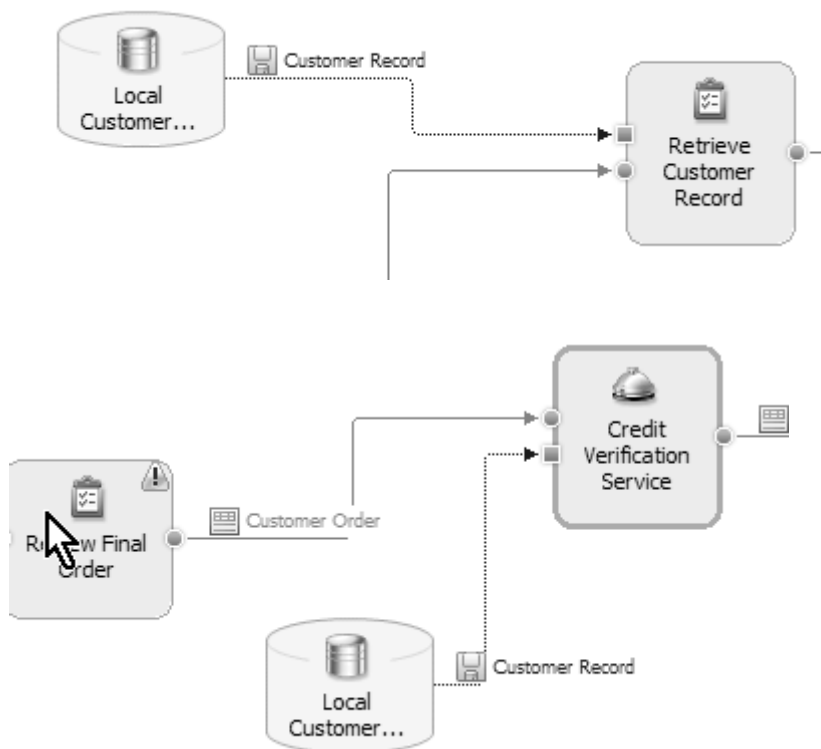


___ 21. Connect the local repository to the task.

___ 22. Save your work (Ctrl+S) and the error is resolved.

___ 23. The local repository name must be unique, so the next Customer Records will be called as Customer Records_1, and so on.

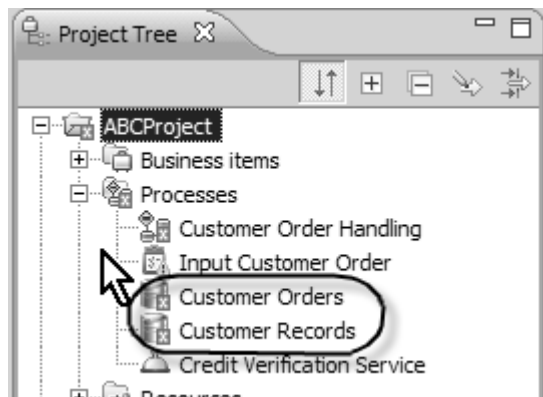
___ 24. Repeat the previous step to correct the rest of the global repositories in the diagram.



___ 25. Save your work (Ctrl+S) and the error is resolved.

___ 26. Once you have converted all the global repositories, then you can delete the global repositories from the project tree.

- ___ 27. Delete both **Customer Orders** and **Customer Records** from Project tree.



- ___ 28. The last error is caused by missing If-then rules. Click the error so that it will bring you the business rule task called **Apply Special Pricing**.



- ___ 29. Click the **Attributes** pane.
- ___ 30. Select **Business Rules** tab.
- ___ 31. Select **Offer 20% discount on product when paying with cash**, and click **Edit**.
- ___ 32. Click **Add Rule**.
- ___ 33. Click the button on **Rule Condition**.

Rule name	Template name	Rule condition	RL
Rule: 1	None		

The Expression Builder window displays.

- ___ 34. Click **Add**.
- ___ 35. Select **Modeling Artifact** as First term.

___ 36. Select the following in the Expression Composer:

Expression Composer

First term: Modeling artifact

First term details: Modeling artifact:

- Apply Special Pricing
 - Input
 - Customer Address
 - Pay by Credit Card
 - Pay by Cash or Check
 - Credit Status
 - Order Item
 - Available Order Item
 - Output

Operator: --Select operator--
is equal to
is not equal to

Second term: Boolean

Second term details: Boolean value: true

___ 37. Click **Apply**.

___ 38. Click **OK** to close the expression builder.

___ 39. Click **OK**.

___ 40. To edit the Rule Action, click the button under **Rule Action**.

Rule condition	Rule action	Rule description
'Apply Special Pricing.Input.Pay by Cash or Check' is		

___ 41. Select **Output > Order Item > Discount Rate** from the Details.

___ 42. Enter 20 as **Specific value**.

Details

For task inputs and outputs, assign a value to the input, the output, or one or more input or output attributes.

Name	Type	Mini...	Maxi...	Value
Apply Special Pricing	None			
Input	Customer Order	1	1	
Output	Customer Order	1	1	
Customer Address	Address	1	1	
Pay by Credit Card	Boolean	1	1	
Pay by Cash or Check	Boolean	1	1	
Credit Status	Text	1	1	
Order Item	ABC Product	1	5	
Available Order Item	Boolean	1	5	
Discount Rate	Integer (short)	0	1	20

Value specification

The value must match the type.

☐ None

☒ Specific value

20

☐ Expression

Edit...

___ 43. Click **OK**.

___ 44. Click **OK**.

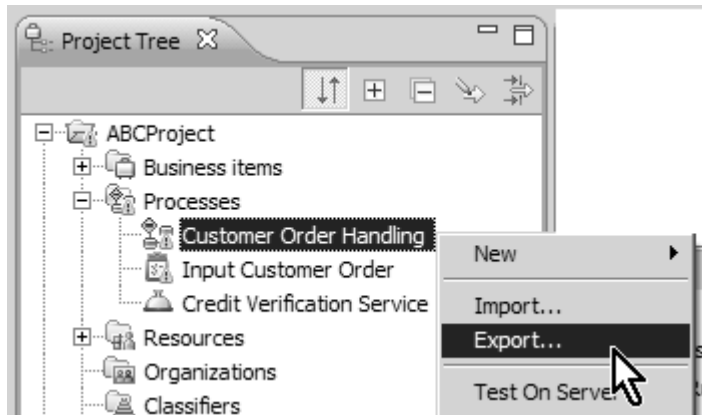
___ 45. Save your work (Ctrl+S) and the error is resolved.

- ___ 46. Check the **Errors** pane. There are no errors remain for the process
- ___ 47. Close the process editor of **Customer Order Handling**.

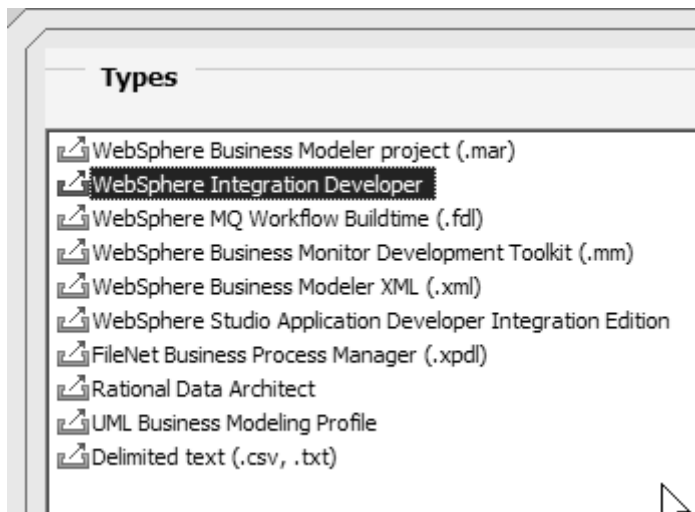
Part 5: Exporting to WebSphere Process Server

At this point, you can export the **Customer Order Handling** process from Modeler.

- ___ 1. From the Project Tree, right-click **Customer Order Handling** and select **Export**.

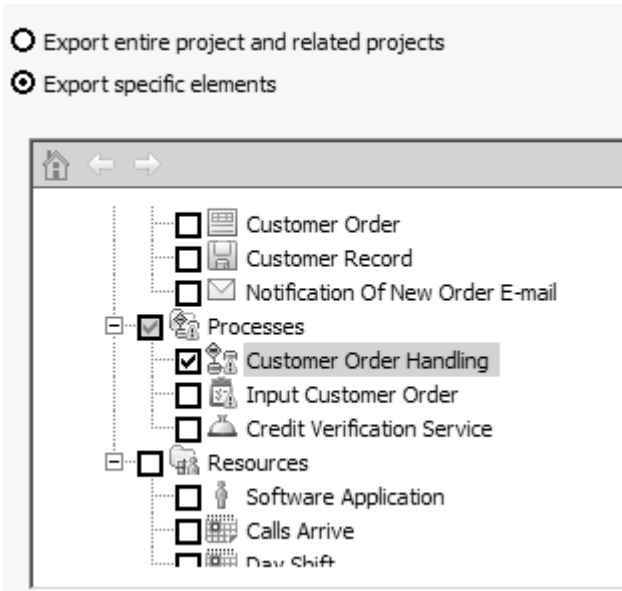


- ___ 2. In the **Export** window, select **WebSphere Integration Developer** under **Types**.



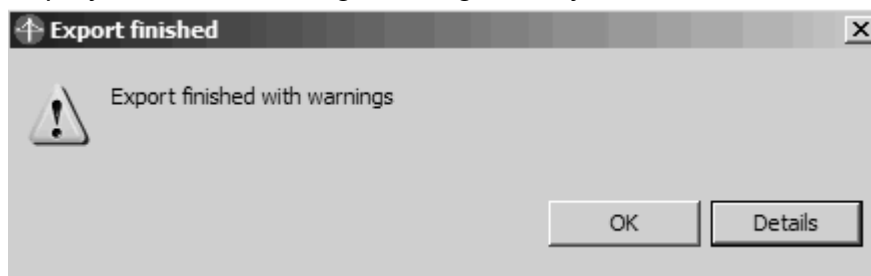
- ___ 3. Click **Next**.
- ___ 4. Click **Browse** to **My Document** directory as the **Target directory**.
- ___ 5. Select the **Export specific elements** option.

- ___ 6. Select **Customer Order Handling** from the list.

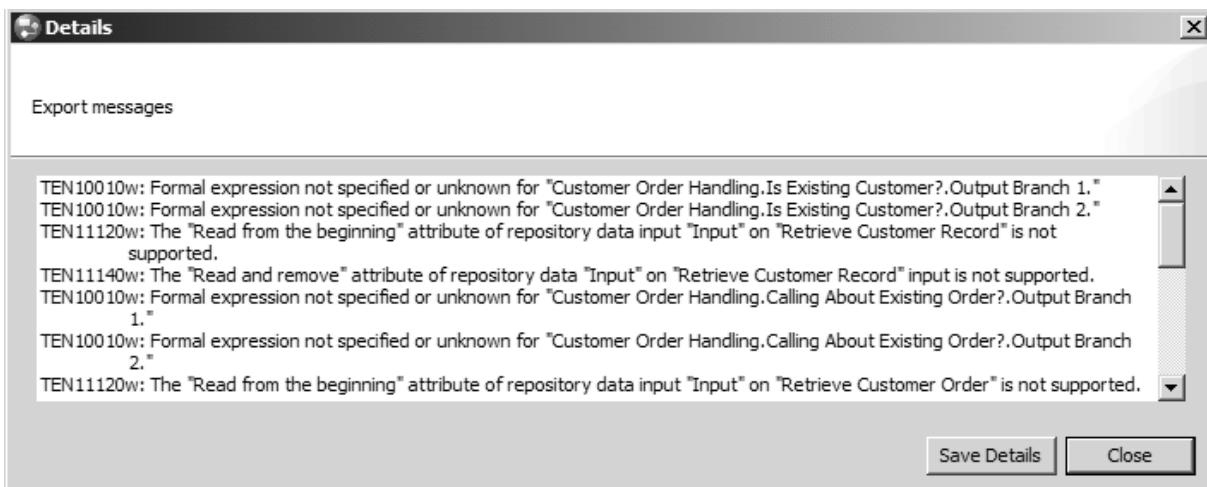


- ___ 7. Click the **Overwrite files** box.
- ___ 8. Click **Next** to accept the default options.
- ___ 9. Click **Finish**.

It will take a few minutes to export these files, and the **Export finished** dialog box will be displayed with a warning message, if any.



- ___ 10. Click **Details** to examine the warning messages.



___ 11. Click **Close**.

___ 12. Click **OK**.

Part 6: Reviewing exported files

Once you export the model, use Windows Explorer and Notepad to view the files:

The exported files are compressed into a zip file called:

ABCProject_YYYY-MM-DDThh.mm.ss.zip

You need to extract the zip file to **C:\ExportWPS** in order to view the contents.

You may examine the following files:

C:\ExportWPS\ABCProject_lib\processes\customerorderhandling\CustomerOrderHandlingInterface.wsdl

C:\ExportWPS\ABCProject_lib\businessitems\businessitems.xsd

C:\ExportWPS\ABCProject\processes\customerorderhandling\CustomerOrderHandling.bpel

A BPEL and a WSDL file have been created for each process, and XSD files have been created for business items used within the process. The generated files are placed in subdirectories C:\Export.

If you are running WebSphere Business Modeler together with WebSphere Integration Developer, you can export the elements directly to your WebSphere Integration Developer workspace.

On the export details page of the Export wizard, select one of the following options to export:

Option 1.

- To export the elements directly to your workspace, clear the **Export using the standard project interchange format for other environments** check box.
- The selected elements are exported and organized into different projects based on the nature of the artifacts and the export option that you choose.
- For example, if you choose to export a specific process and select **Recommended Export** Option, a business logic module project, implementation module project, and development library project are created.
- If there are no implementation artifacts, only a business logic module project and development library project are created. When you click **Finish**, the elements are exported to the directory you chose in the Target directory field on the previous page of the wizard, and the appropriate projects are created in the WebSphere Integration Developer workspace.
- Important: If you use the same module or library project name in a subsequent export, the export will fail. The failure occurs because project names must

beunique in the workspace. To solve this problem, either rename the projects or export them as a project interchange file instead.

Option 2.

- To compare the modified artifacts with the previous artifacts exported from WebSphere Business Modeler and merge the changes in WebSphere Integration Developer
- Accept the default option and export to a project interchange file.
- After exporting, you can switch to the Business Integration perspective and use the synchronize wizards and editor to identify changes.

This lab does not cover the import into WebSphere Integration Developer.

___ 13. Close **Notepad**.

Part 7: Using the Modeler help

Use the search function in Help to locate the following topics and answer the questions.

___ 1. What is UML export reference?

___ 2. How do you export projects to WebSphere Integration Developer?

___ 3. What are the mapping details for the WebSphere Integration Developer export?

___ 4. Exit WebSphere Business Modeler.

___ 5. Review the flashcards for this unit.

End of exercise

Appendix A. Solutions

What this exercise is about

This Appendix covers the solution for Lab Exercise.

Solution for Exercise Process Improvement

The average cost (last second column of the right) for all cases is \$172.11.

- a.) Activity `Accept Credit` Cost \$83.12
- b.) Activity `Assess Risk` Cost \$55.38
- c.) Activity `Review Loan` Cost \$67.50

The average elapsed duration for all cases is 2 days 19 hours 3 mins.

- a.) Activity `Collect credit information` Duration 1 day 13 hrs 20 mins.
- b.) Activity `Review Loan` Duration 1 days 4 hrs 22 mins.
- c.) Activity `document interview` Duration 18 hrs 15 mins.

The average elapsed duration for all cases is 2 days 10 hrs 22 mins.

The average process cost for all cases is \$161.55.

- a.) Activity `Collect credit information` Duration 1 day 13 hrs 50 mins
- b.) Activity `Accept credit` Duration 14 hrs 42 mins
- c.) Activity `Request Mgt approval` Duration 7 hrs 37 mins
- a.) Activity `accept credit` Cost \$83.06
- b.) Activity `Review loan to be` Cost \$41.25
- c.) Activity `Assess risk` Cost \$55.38

The redesign model has reduced the average elapsed duration by 12.95%.

The redesign model has reduced the average cost by 6.13%.

The redesign model has increased the average profit by 13.55%.

